ELECTRICAL WORLD *News Issue*

APRIL 30, 1949

A McGRAW-HILL PUBLICATION

E. C. Marshall, Newly Elected President of Duke Power Co

Your own records will show what we've done about lightning

In the middle of 1943 our engineers made discoveries about impulse strength which led to changes in design of small, low- and medium-voltage distribution transformers. What these changes accomplished can be seen in *your* records.

If your experience is typical, roughly half of all distribution transformer failures can be charged to lightning. However—if your records are typical—on all Spirakore transformers delivered since late 1943, lightning failures have been almost insignificant.

One of Many Spirakore Advantages

Important as this increased impulse strength is, it is still only one of the advantages you get with General Electric distribution transformers. You get Spirakore design throughout the entire line of single-phase liquid-filled transformers—with its great savings in size and weight. You get improved clamping construction for greater mechanical strength. You get sealed tanks for longer oil life. You even get a new, better, synthetic-resin baked-on paint which improves appearance and reduces maintenance.

Spirakore Still Leads

Today—as ten years ago when lighter, smaller Spirakore transformers made history—Spirakore still leads the field—the finest distribution transformer we have ever made, the finest you can buy. Ask for Bulletins GEA-4885 and GEA-4521. *Apparatus Dept., General Electric Company, Schenectady 5, N. Y.*

Spirakore Transformers

GENERAL ELECTRIC

612-91

The Electrical Week

The super-cooperative is here. But it is devoting its efforts to generation and transmission instead of distribution. Pattern is for a group of co-ops in a state or area to form the super-group. So far 18 G&T co-ops have secured $136,079,809 in REA loans . . . At Chicago, engineers at the Midwest Power Conference were told that they have an unparalleled opportunity to apply American enterprise and skill to help the country and the world. At the many technical sessions, they showed that they have the skill . . . And the Army Engineers and the Bureau of Reclamation, feeling the breath of a Columbia Valley Administration down their necks, settled their differences over developing the Pacific Northwest. Solution was simple. Generally speaking, the Engineers will take over the downstream sections of the area, the Bureau the upstream.

Canada is exporting more electric energy to the United States than it did in 1948. February exports of 161,793,000 kwhr were the highest for that month since 1946.

That hopeful 15% cut in federal power construction cost estimates and appropriations may not prove to be well founded a year from now, but the thinking behind it has some basis. Government construction officials find they're getting more bidders on federal jobs. And they find that more of the bids are coming in below government estimates. Contractors seem to be paring the mark-up for contingencies they used to add to their bids.

The Manitoba government has indicated that because of the power shortage facing the province it would rush its Pine Falls project on a cost-plus basis. The Opposition in the Legislature will oppose any such contracts.

The new Argentine constitution practically has a section devoted to legalizing the seizure of the properties of the American & Foreign Power Co, whose five subsidiaries have supplied zones all over the country with electricity since 1928. The new section not only allows the government to expropriate the American holdings but also has such conditions that the American firm would cease operations owing the Argentine government money.

As of Jan 1, systems served by TVA had 15,000 house heating installations on their lines. They expect to add 3,000 this year. There were only 2,500 on Jan 1, 1945, and TVA estimated only 10,000 house heating installations would be added in the five years after the war.

The new nuclear reactor testing station at Arco, Idaho, will require very little power in its early operation. Estimates are 5,000 kw in 1951, 10,000 kw in '52, 15,000 kw in '53. By 1958, as much as 60,000 kw may be required. What is more, if experiments to be made at the plant are successful, this power will be produced at the plant from atomic energy. In the meantime, Idaho Power Co will be the power supplier.

One of Switzerland's most important exports these days is electrical energy.

Of 46 municipalities in Florida, over half are imposing special utility taxes. Several are taxing the sale of utility services furnished by municipally owned plants.

The long drought is beginning to squeeze French industry. Reservoirs are only 10% filled, and thermal stations are providing about 75% of total power requirements against the normal 40%.

No matter what American utilities say they are just common ordinary commercial enterprises without social class or distinction. In Britain, the British Electricity Authority has applied to the College of Arms for its own armorial insignia. And will those British generators look down on their American counterparts who have to operate without a coat of arms?

Gas utilities should be divorced from electric company ownership. The reason: most electric companies which own gas properties throttle the gas industry and prevent it from developing and competing equally with the electric system. The proponent: Hansell Hillyer, president of the South Atlantic Gas Co.

Notes From The News

Bonneville Power Administration was the big loser among Northwest utilities in the recent earthquake. Loss may reach $50,000. Most of the damage was to transformers . . . Niagara Hudson Power Corp stockholders are showing more interest in the corporation. At the last meeting 85.2% of the voting shares were represented, highest percentage in history . . . Miss

Continued on following page

ARCO, IDAHO, has been selected as the site of a new Western plant of the Atomic Energy Commission. About 400,000 acres will be included in the project. Two of the four reactors now in the design stage definitely will be located here. These are the materials testing reactor and the prototype of the Navy propulsion reactor.

Vivien Kellems, Connecticut electrical manufacturer, is still daring the Secretary of the Treasury to indict her for not withholding income taxes from her employees. She wants to test the constitutionality of the law . . . Israel, the world's newest nation, is planning a TVA-like authority, the Jordan Valley Authority, for development of irrigation and hydroelectric power in Palestine . . . The Simmons Co is discontinuing its production of electric blankets . . . In its search for radioactive materials, Britain is encouraging mining firms and prospectors in the colonies to locate deposits of uranium and thorium. The colonies are considered better sources than Britain itself, which has been completely surveyed. . . . May has been chosen National Water Systems Month. Theme is "Profit Grows When Water Flows." Promotion will emphasize the entire electric water system industry.

Construction:

Chairman Robert H. Saunders of the Hydro-Electric Power Commission of Ontario has notified ELECTRICAL WORLD *that it was incorrect in its recent statement that a fire at Hydro's Des Joachims project will delay completion by several months. The project will be completed on schedule, Chairman Saunders asserts . . . The Bureau of Reclamation has announced that construction at Davis Dam is five months ahead of schedule . . . Delaware Power & Light Co will begin construction of its $26 million power plant at Edge Moor, near Wilmington, in May . . . Toledo Edison Co has installed smoke abatement equipment, costing $350,000, in its Acme Plant at East Toledo . . . Alabama Power Co has placed on the line the first of two 60,000-kw units at its Gadsden steam plant.*

Financial:

Stockholders of Delaware Power & Light Co have okayed an increase in the number of authorized $100-par preferred shares from 100,000 to 200,000 and an increase in the unsecured debt . . . The Indiana Public Service Commission has approved Southern Indiana Gas & Electric Co's request for permission to issue $3 million worth of first mortgage bonds to help finance a $10 million expansion program . . . Public Service Electric & Gas Co, Newark, stockholders have authorized issuance of $75 million in first and refunding mortgage bonds. The company expects to raise an additional $20 million to $25 million in new capital this fall to finance its expansion program . . . Southern California Edison Co's net for the first quarter is estimated at close to $1 a common share on the basis of incomplete figures. This compares with 26c a common share for the first quarter of 1948 and 61c for the same 1947 period. The big jump over last year was attributed in part to abnormally cold January and February weather and to serious drouth conditions in 1948. Edison does not expect such a large net for the rest of 1949 but anticipates a satisfactory net income for the first time since before the war.

Legislation:

Local taxes on public utility services would be prohibited under a bill passed by the Pennsylvania Senate and now under discussion in the House . . . The Florida Legislature is considering a bill to force electric utilities to put all lines running above the surface of a public road at least 24 ft above the surface level or else underground.

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Co-ops Combine to Form Super-Co-ops

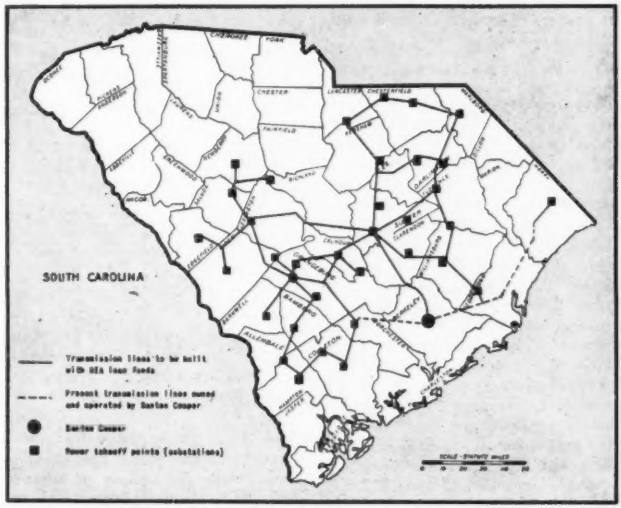
Distribution Groups in 16 States Consider Generating & Transmission Organizations; 18 Have Been Granted $136,079,809 in Loans by REA

SOMETHING NEW is being added in rural electric power systems. It's the federally financed "super cooperative," organized to generate and transmit energy for distribution systems in farm areas.

Generating and transmission systems, backed by Rural Electrification Administration loans, are not new, of course. The first—a predecessor to the present Corn Belt Power Cooperative, of Humboldt, Iowa—obtained the initial REA "G&T" loan in 1936. Since then REA has approved loans aggregating $136,079,809 for a total of 18 such systems in ten states.

But today cooperatives and other rural systems in at least 16 states are seriously considering construction of new "G&T" facilities, to be built, operated, and maintained by "super co-ops." Cost estimates range from $20 million to $50 million and upward per completed "super co-op" system.

REA as yet has only a handful of formal applications for "super co-op" loans. And it officially is sticking to its long-standing policy of granting such requests only where it deems generation and transmission facilities necessary to assure its borrowers adequate power supply or to effect substantial savings in energy costs. This policy has kept the proportion of REA's "G&T" loans to about one eighth of its total allotments for all purposes. As of Jan 31, the agency had approved a total of $1.618 million in loans for all purposes, only $202,783,000 being allocated for generation and transmission facilities.


SOUTH CAROLINA
Transmission lines to be built with REA loan funds
Present transmission lines owned and operated by Santee Cooper
Santee Cooper
Power takeoff points (substations)

TERRITORY to be served by the new Central Electric Power Cooperative, Columbia, S. C.

But REA and its borrowers are moving into a new era of operations under the old "G&T" policy. In increasing numbers, distribution co-ops are complaining that their energy supply is inadequate, either for the present or for anticipated future demands. Construction of federal hydro plants, now nearing completion in the South, Southwest, and Far West, creates anxiety among certain rural power groups to obtain the share of energy guaranteed co-ops and public bodies under preference provisions of the Reclamation and Flood Control Laws.

REA perhaps is motivated by additional considerations in its handling of loan applications to finance "super co-ops." The lending agency's major job of financing rural distribution systems is nearing completion and, despite inflated construction costs, its allocations for distribution facilities should begin declining soon. But Congress is preparing to give it a record loan fund—up to $500 million—for the fiscal year starting July 1.

In addition, it has the same political problem that plagues every federal agency involved in a major construction program. Having made loans to "G&T" co-ops in ten states, REA is under considerable pressure to do as well by other areas.

At any rate, the probable "break" in

REA'S Stake in Generation and Transmission

Name of Co-op.	LOAN APPROVALS				DEBT SERVICE (12-31-48)		
	Amount of Loan	Tot. Capcy. Author. (Kw.) (4-6-49)	Trans. Approv. (Miles)	Funds Advanced (12-31-48)	Principal & Interest	Advance Payments	Overdue
Alabama Electric, Andalusia	$7,640,000	35,270	576	2,626,660	$191,416	$4,858	
Kamo Electric, Vinita, Okla.	1,800,000	0	800	1,310,046	18,518	18,518	
S. W. Federated Power, Creston, Iowa	6,100,000	20,760	400	1,876,138	.....	.....	
Central Iowa Power, Cedar Rapids, Iowa	6,100,000	20,000	256	737,490	.....	.....	
Corn Belt Power, Humboldt, Iowa	15,556,868	52,055	617	5,680,998	429,616	13,306	
Rural Electric, Maple Lake, Minn.	13,795,472	46,685	671	4,252,651	206,046	.....	$19,479
West Minn. Power, Alexandria, Minn.	1,500,000	3,195	0	540,338	5,371	.....	
Border Counties, Warroad, Minn.	1,350,000	3,465	76	965,314	.....	.....	
Sho-Me Power, Marshfield, Mo.	5,773,625	4,575	974	2,929,000	684,303	.....	
M. & A. Power, Poplar Bluff, Mo.	2,990,000	10,000	112	.....	.....	.....	
N. E. Mo. Electric Power, Palmyra, Mo.	8,186,000	23,940	378	465,422	.....	.....	
Minnkota Power, Grand Forks, N. D.	13,610,304	31,460	1,183	5,612,488	209,206	.....	
Dakotas Electric, Bismarck, N. D.	4,033,000	7,500	206	.....	10,054	.....	
Western Electric, King Fisher, Okla.	927,000	3,000	35	213,166	.....	.....	
Central Electric, Columbia, S. C.	7,595,000	0	834	.....	.....	.....	
Brazos River Trans., Waco, Tex.	8,250,000	11,500	915	5,883,659	302,317	.....	
So. Texas Electric, Victoria	780,000	4,000	41	.....	.....	.....	
Dairyland Power, La Crosse, Wis.	30,092,540	88,550	677	17,929,959	1,417,166	.....	

the hitherto formidable REA dike against the anticipated flood of "G&T" loan applications came last January. At that time the agency approved a $7,595,500 loan to the Central Electric Power Cooperative, of Columbia, S. C. Central Electric proposed to build 834 miles of transmission lines to carry energy from the South Carolina Public Service Authority's Santee-Cooper hydro project to 14 REA-financed distribution co-ops.

Planned for Ten Years

Co-op people in South Carolina had been planning their own transmission system for ten years previously. Once they obtained an initial REA loan—never used—to start a network considerably smaller than that planned by Central Electric. Actually, Central Electric is a sort of holding company co-op. The transmission lines will be operated by the Public Service Authority, which will pay an annual rental to the co-op until the REA loan has been amortized. Title will then pass to the Authority.

Typical of the "super co-ops" whose plans are in advanced stages is the recently organized Arkansas State Electric Cooperative. It has filed an application with REA for a $6-million loan to start construction of some $20 million of transmission and generating facilities. It plans to serve three distribution co-ops by 1952, later to supply energy at wholesale to all the 18 REA-financed distribution systems in the state. When completed, its system would consist of 1,958 miles of transmission lines, 74 substations, and four steam generating stations with a total capacity of 46,000 kw.

Seek SPA Power

The Arkansas co-op, like others proposed in Oklahoma, Missouri, and adjoining states, hopes to obtain energy from the Southwestern Power Administration. SPA, under present statutes, will market federal energy from the several multiple-purpose river developments being built by the Army Engineers in the Southwest.

Similar co-ops are in the process of formation in Virginia and North Carolina to purchase federal energy from the Engineers' Buggs Island project on the Roanoke River. None has yet applied for an REA loan, however. Talk of new "G&T" co-ops also is more or less serious in Georgia, Texas, Illinois, Louisiana, Iowa, Ohio, New York, Kansas, and Kentucky.

The 18 existing "super co-ops" have obtained loan approvals totaling $136 million—all but $66,703,000 of the

MONTANA-DAKOTA UTILITIES CO, a private utility, will build some of the facilities for the Dakotas Electric Cooperative and is seeking FPC approval to acquire them later

funds REA has approved for generation and transmission. They have received some $51 million in advances from REA. Several systems are still under construction, and most of the "super co-ops" have revised their construction plans. Today they are operating the following facilities:

Co-op	Total Installed Gener. Cap. (Kw.)	Trans Lines (Miles Energized)
Alabama Electric	11,182	230
Southwestern Federated Power	5,758	167
Corn Belt Power	22,355	—
Rural Cooperative Power Association	16,900	450
Western Minnesota Power	3,195	—
Border Counties Power	2,563	—
Sho-Me Power Corp.	4,971	760
Minnkota Power	9,960	385
Brazos River Transmission	—	550
Dairyland Power	53,700	759

The total of 130,584 kw of installed capacity includes old equipment or acquisitions, some of which have been retired or held for stand-by use only. The "super co-ops" own more than half of the generating capacity installed in REA-financed plants, which amounted to a total of 240,632 kw last Dec 1. One co-op, Dairyland Power, of La Crosse, Wis., owned 44,000 kw of a total of 48,985 kw in steam generating capacity in all REA-backed plants.

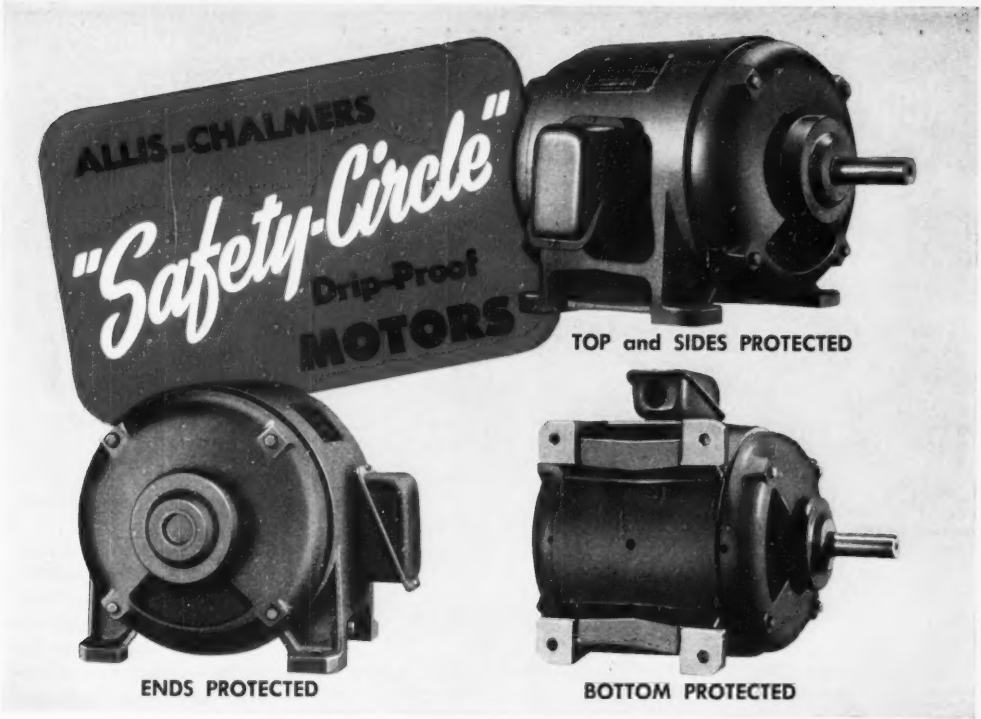
The 18 "G&T" co-ops are serving, or eventually plan to serve, a total of 165 distribution cooperatives or other REA borrower systems. Their present plans are to install an eventual total capacity of 365,955 kw of generating capacity and to build 8,751 miles of transmission lines, and "necessary" substations, in the process.

Some proposed "super co-ops" still in the talking stages are too ambitious even for REA. For example, an Illinois group is discussing a $50-million REA loan application to install generation and transmission facilities serving 27 distribution co-ops. Because it's limited by law as to the amount of funds it can lend in any single state out of an appropriation, REA cannot make a loan of such proportions. But, as it has done with Corn Belt and Dairyland, the agency can make a series of loans to such a co-op over a period of years.

•

Hydro Plant Approved

Nantahala Power & Light Co has received Federal Power Commission approval for construction of a $750,000 hydroelectric project on the Tuckasegee River near Glenville, N. C. Work will start immediately on the project. The new power plant will be approximately one mile below the Glenville power house. A 2,200-ft tunnel will lead from the 85-ft dam to the 3,600-kw generator.



Get All-Around Motor Protection with

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THAT SOLID CAST IRON FRAME protects SAFETY-CIRCLE working parts against physical damage from every angle. The completely enclosed bottom provides extra protection and extra strength. End brackets are drip-proof at no premium.

Because the frame is cast iron, it is resistant to rust and corrosion. It withstands physical abuse and will not distort.

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SAFETY-CIRCLE protects against internal breakdown with multiple-dipped and baked stator and die-cast aluminum rotor. *Ball bearings are factory-lubricated and need no attention for years.* Wide open internal construction and large fans keep temperatures well within rated limits.

Don't be satisfied with a motor that gives you less than full protection. Insist on the extra protection of SAFETY-CIRCLE.

For complete details on SAFETY-CIRCLE advantages, see your A-C Authorized Dealer, Sales Office, or write for Bulletin 51B6210B. Sizes from 1 to 20 hp, 326 frames and smaller. Safety-Circle, Texrope and Vari-Pitch are Allis-Chalmers trademarks.

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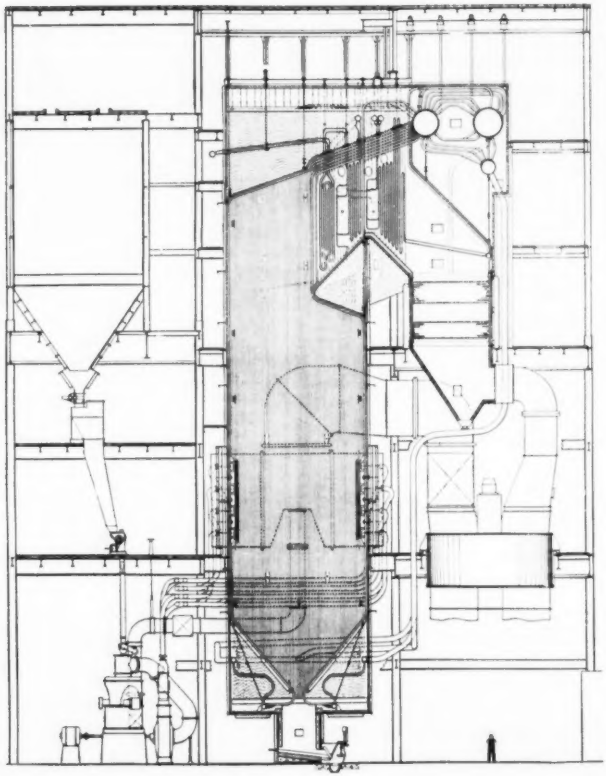
Recent C-E Steam Generating Units for Utilities

PLANT YATES

GEORGIA POWER COMPANY



THE C-E Unit illustrated here, one of two duplicates, is now in process of fabrication for Plant Yates of the Georgia Power Company, Whitesburg, Georgia.

It is designed to produce, at maximum continuous capacity, 975,000 lb of steam per hr at 1325 psi and 950 F.

The unit is of the 3-drum type with 3-stage superheater and economizer surface in the rear pass. Regenerative air heaters follow the economizer surface.

The furnace is completely water cooled, using plain tubes on close centers, and is of the basket bottom type, discharging to a sluicing hopper.

Pulverized coal firing is employed, using bowl mills and vertically-adjustable, tangential burners. Natural gas will also be used as an alternate fuel or in combination.

This unit and its duplicate will each serve 100,000-kw turbine-generators comprising the first section of a completely new station. B-311

C-E

Combustion Engineering–Superheater, Inc.

A Merger of COMBUSTION ENGINEERING COMPANY, INC. and THE SUPERHEATER COMPANY

200 MADISON AVENUE, NEW YORK 16, N. Y.

Any way you look at it, a poor wiring system cuts lighting efficiency . . . causes headaches for plant electricians and maintenance men as well as for production workers.

Improving plant lighting and reducing maintenance costs are important functions of General Electric wiring materials. Exciting new products and a full line of old standbys make General Electric the right choice for every wiring requirement.

1. **NEW G-E REMOTE CONTROL** wiring puts switches for various lights in many convenient locations. Master panel can be located at production head's desk. Banks of switches can also be located at convenient points in the shop for local control. This flexible, new wiring system also permits control of any or all lights from distant locations, such as other offices or a master-control point. The G-E remote control wiring system makes multi-point switching economical and easy to put in.

2. **G-E REMOTE CONTROL WIRE**—lightweight, with two or three conductors—was specially designed for remote control wiring. This trim-looking wire can be installed either concealed or exposed—makes a neat installation when it's run along wall surfaces. It permits remote control switches to be placed practically anywhere. The use of a low-voltage relay makes this small-size wire practical.

3. **AVA POWER CABLE** is a natural for bringing in power to a high-level lighting installation like this. And, when you think of power cables, think of General Electric Deltabeston* cables. They'll save you maintenance grief, because they're built to beat ambient and operating heat. They can help you save space, too, because they are designed to carry more current than ordinary cables of the same size.

*Trade-mark Reg. U.S. Pat. Off.

4. **TYPE TW WIRE** is recommended for installation in raceways. Smooth-finished G-E Type TW can be cut and stripped with little effort—pulls through conduit easily when wiring changes are necessary. Small diameter and long life are features of this G-E thermoplastic wire—use it to help your wiring system stay modern.

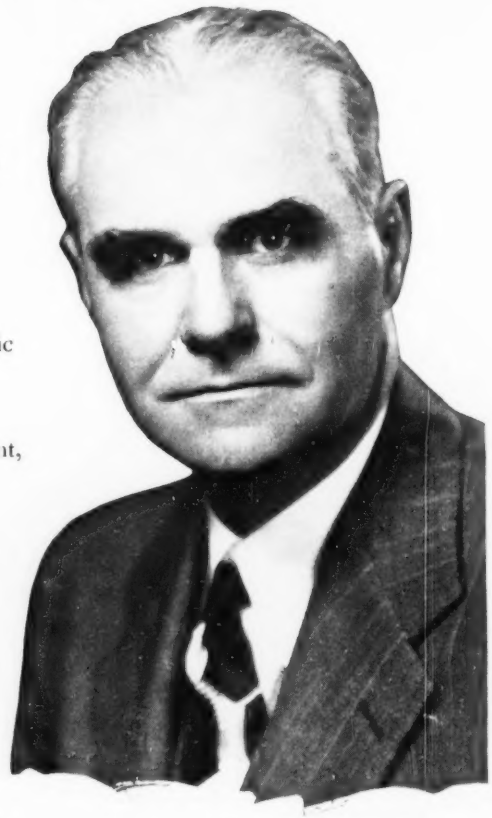
5. **CONDUIT,** of course, should be General Electric "White"—the rigid conduit that's *hot-dip* galvanized for extra protection. High-grade steel—galvanized inside and out, and lacquer-coated—gives you maximum wiring protection with a minimum of maintenance. Remember to specify "G-E White."

Your distributor of General Electric construction materials can supply you with any of these materials, or with any of thousands of other items from the General Electric line. For more information, contact him, or write to Section K17-427, Construction Materials Department, General Electric Company, Bridgeport 2, Connecticut.

GENERAL ELECTRIC

"Here's why utilities should get behind Modern Street Lighting..."

says **Samuel Stites,** ***Vice President, Ohio Edison Company, Akron, Ohio***

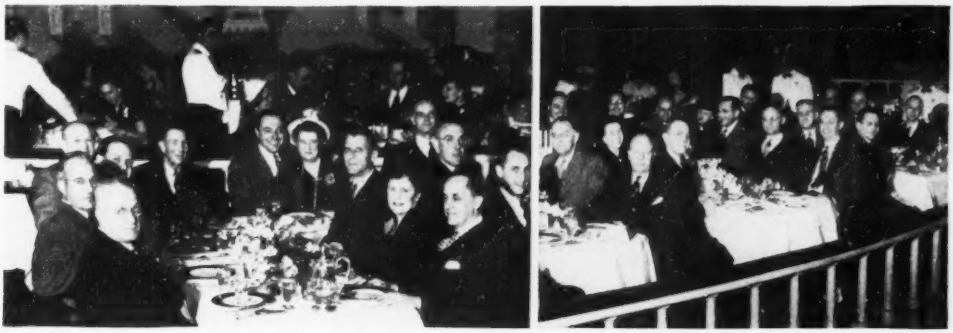


"AMERICA'S mounting toll of deaths from traffic accidents is fast reaching emergency proportions," says Samuel Stites, Vice President, Ohio Edison Company, Akron, Ohio.

"And inadequate street lighting is a prime contributor to accidents costing the lives of thousands of our citizens and millions of dollars, annually," continues Mr. Stites. "As stewards of public welfare, it behooves utilities everywhere to promote the cause of modern street lighting. It's just good sense and good business to do our part in helping to control this huge personal and economic waste."

FOR MORE FACTS . . .
To "shed more light" on methods employed by a utility to stimulate interest in modern street lighting, write for your free copy of "A Planned Program for Better Street Lighting."

The Street and Traffic Safety Lighting Bureau, 155 East 44th St., New York 17, N. Y.



REUNION NOW was the happy goal achieved by these former staff members of the old Office of War Utilities

Duty of Engineers to Improve World Stressed at Midwest Power Meeting

ENGINEERS have an unparalleled opportunity and obligation to apply American enterprise and skill in the lagging valleys of this country and the economically backward areas of the whole world. So asserted Gen R. A. Wheeler, formerly Chief of Engineers and now engineering advisor to the World Bank, before the Midwest Power Conference, Apr 19, in Chicago. He interpreted Point Four of President Truman's inaugural address in such terms, adding that the program both here and abroad by no means contemplates exclusion of private capital from the developmental projects. Illinois Institute of Technology and the associated sponsoring schools and professional societies of the Midwest had tendered a testimonial scroll to General Wheeler earlier. Half the 2,000 attending the 3-day sessions were at the dinner, one table occupied by more than 20 former OWU staffmen holding their first reunion.

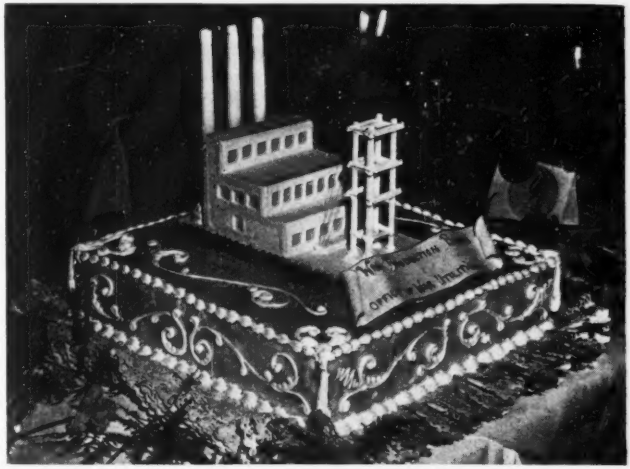
Discrepancies in statements by the utility industry and by others as to the actual margin of capacity over peak were brought out by E. R. deLuccia, Federal Power Commission, before presenting the FPC prediction of 525 billion kwhr and 100 million kw of utility load in 1960 with 15% reserve. This means 61 million kw must be added, not including replacement of some 10 million kw of obsolescent generation. He used the phrase "hand-to-mouth" in characterizing the present situation and declared that abundance of electric power is the basis of the economy of abundance almost everyone desires.

The problem of carrying the burden of any capacity reserves that might be desired for national security purposes was brought out by Edward Falck, National Security Resources Board. "An argument could be made that the cost of developing and maintaining these extra reserves should be borne by the taxpayer rather than by the consumer. (But) Great advantages can be gained by having the reserve capacity built by, and made a part of, operating electric systems."

In an appeal to the public and private power proponents to get together in the interest of national security, Falck said, "It seems to me that if all the brains (legal, engineering, and public relations) that are now being devoted by both sides to the ideological public-private fight could by some means be channeled into more constructive purposes of improving the size, scope, and quality of the electrical industry, there would be a very clear gain by the country as a whole."

Man-hours of development and research are the inescapable answer to the question "when will useful nuclear power be available?" said Dr Norman Hilberry of Argonne National Laboratory. One potent deterrent to quick results is the limited knowledge about behavior of structural materials under the influence of radioactivity. Effective heat transfer to the working fluid from the reactor is another major problem. He added that it is no accident that two of the four reactors projected are of the power breeder type although breeding may not prove economically feasible as an adjunct to power generation.

In outlining the Commonwealth Edi-



SEWAREN STATION of the Public Service Electric & Gas Co, N. J., appeared like this on the anniversary cake prepared for the reunion of the old Office of War Utilities staff

OPENING MEETING of Midwest Power Conference had as its chairman, Alex D. Bailey, left, vice-president, Commonwealth Edison Co, Chicago. The others, left to right, were speakers: Ben G. Elliott, University of Wisconsin; J. W. McAfee, president, Union Electric Co of Missouri; and Edward Falck, National Security Resources Board

son expansion program, T. G. LeClair included mention of the centralized control room at the new Ridgeland plant and the new coal loading facilities at Havana to handle up to 3,500,000 tons per year from the Illinois coal fields to the plants of the 4-company Chicago-area system. The 66-kv underground ties from Ridgeland will be designed to handle a record 140 mw over each group of three-single conductor cables.

Successive purchases of boilers by a certain utility since 1920 were traced by E. M. Powell of Combustion Engineering-Superheater as a pattern of the evolution. Of particular interest was the use of water cooling, initially to protect the vulnerable refractory walls, next in finned tube form in the lower section, and finally, extended to the top, in closely packed tubes to comprise a complete water wall. Powell paralleled this with a discussion of the methods developed to control superheat and reheat temperatures. Reheat outlay, he said, is being recovered in 4-5 years with coal from $7 to $8.50 and a 65% plant factor.

Studies by Babcock & Wilcox, according to F. X. Gilg, are being carried up to 1,600 F to bring out the characteristics of austenitic and super alloys. He said it is reasonable to expect it will be feasible to go higher than the present 1,100 F limit for steam. As for control of superheat and reheat temperatures, Gilg mentioned recirculation of gas from the economizer back into the bottom of the furnace. The new Twin Branch boiler, American Gas & Electric Co. will be arranged for recirculation besides having burners placed in the top of the unit. Sporn plant, AG&E, is, he said, to have a simplified scheme of interlocking with pulverizer operation to protect the turbine-boiler during emergency tripout.

Fifty cyclone furnaces have been purchased and five are in operation, Gilg reported. Omission of induced draft fans and approach toward a pressurized furnace is becoming a trend, with benefits from efficiency, fan maintenance, fan power, and simplified combustion control. A new Dow Chemical boiler is to operate at 50-in pressure.

In discussion, H. B. Wallace of Foster Wheeler cited the merits of multiple furnaces with differential firing to deal with superheat temperature and dual circulation to lower the carry over.

Relative merits and cost of the five most advantageous among nine recognized patterns of industrial distribution systems were given by H. B. Thacker of Westinghouse: Modern radial, 100; loop primary radial, 105; primary selective radial, 110; banked secondary radial, 145; simple network, 175; primary selective network, 155.

CHARLES G. DAWES left, former vice-president of the United States, presents plaque to Lt Gen Raymond A. Wheeler, retired Chief of Engineers, for his contributions to the engineering profession

Carryover experiences in the boiler-turbine units on the American Gas & Electric system were detailed by W. L. Webb. He added that a nation-wide survey showed adverse consequences from carryover in something over 750,000 kw of capacity, capabilities at times being reduced 12% and efficiencies 8%.

Water distillation from evaporators can be done on 100,000 gal per hour scale from a battery of four units in which the heat for the vaporization is obtained by 10 degree temperature rise by vapor compression, said E. T. Erickson of Erickson Chemical Co. He cited $150,000 approximate cost; each unit requires about 65 hp for the positive pumps.

Analog computers have so much greater scope than ac calculating boards, said D. L. Whitehead, that Westinghouse is looking to them to solve mechanical systems, servomechanisms, and electrical transients as well as steady state electric circuit problems.

•

Wage Increase of 8% Averts Strike at Vepco

A threatened strike was averted at Virginia Electric & Power Co when the company and the International Brotherhood of Electrical Workers, AFL, agreed on an 8% wage increase, retroactive to Apr 1.

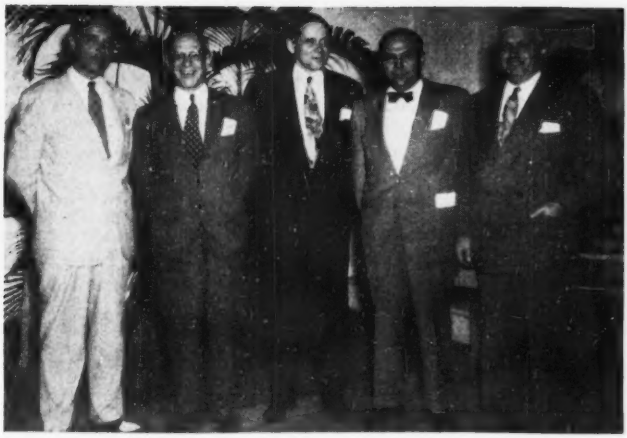
IBEW had set a strike for May 6 to enforce demands for a 15% increase for the 2,500 production and maintenance workers it represented in a tri-state area serviced by Vepco. The company had offered a 4% lump-sum bonus. Gov. William M. Tuck was prepared to seize Vepco facilities under state law if the strike began.

Six percent of the increase is across the board. The other 2% of the company's payroll will be allocated for the purpose of eliminating inequalities in the wage structure. How the 2% will be distributed will be decided by an arbitrator appointed by the Federal Mediation and Conciliation Service.

•

Grant Missouri Franchise

Webb City, Mo., has granted the Empire District Electric Co another 10-year power franchise.



PROMINENT INDUSTRY SPEAKERS at the Southeastern Electric Exchange meeting, Apr 13-15, at Boca Raton, Fla, included Gwilym A. Price, left, president of Westinghouse Electric Corp; Chester A. Lang, vice-president of General Electric Co; Col H. S. Bennion, vice-president of Edison Electric Institute; Albert F. Tegen, president of General Public Utilities Corp; and Walker L. Cisler, executive vice-president, Detroit Edison Co

Engineers and Reclamation Settle Differences on Columbia Projects

WITH THE hot breath of valley authority boosters on their necks, the Army Engineers and Bureau of Reclamation finally have settled their differences over who should build what dam in the Columbia River Basin.

The Reclamation-Engineers agreement had been in the making since last summer. President Truman called on the two agencies to coordinate their construction plans in June, again in September. Engineering plans of the two services were largely agreed upon last winter, leaving only a few policy questions to be ironed out.

Announcement of the full agreement last week by the White House had significant timing. Army and Interior sent the accord to the President on Apr 11. On Apr 13, Mr Truman, in a special message to Congress, asked for establishment of a Columbia Valley Administration. CVA legislation was introduced in the House on Apr 14—and Interior Secretary Krug endorsed the Columbia Valley Administration proposal the same day. Not until Apr 19 was the Engineers-Reclamation Bureau agreement announced by the White House.

A principal policy decision in the agreement calls for the pooling of power revenues from Army and Reclamation projects in the basin to support irrigation works. The agencies also agreed to interconnect the hydroelectric projects with "necessary" transmission facilities.

The controversial Hell's Canyon project, proposed for construction on the Snake River on the Idaho-Oregon boundary, would be built by the Reclamation Bureau under the agreement. Both agencies previously had claimed this project.

The accord also narrowed the chances for further conflict over such projects by dividing streams of the area for future investigations. Under this arrangement, the Engineers would restrict future activities to the following zones: Columbia River, main stream below Grand Coulee; main stream of the Snake below the mouth of the Grand Ronde River; the Kooskia project; the entire Williamette River Basin; the Kootenai Basin; the Spokane River Basin, and the Pend-Oreille Basin below and including Pend Oreille Lake.

The Reclamation Bureau would have primary responsibility for development on upstream sections of rivers, above the Army's area of jurisdiction. It also would develop most of the lesser tributaries of the Columbia and the Snake.

There are still a few minor details to be arranged.

Santee-Cooper Loses 2 Court Battles to Utilities

South Carolina's Public Service Authority (Santee-Cooper) met with two court defeats last week in its move to invade territory now served by private utilities.

The U.S. Supreme Court wrote an end to the long battle to block South Carolina Electric & Gas Co's purchase of South Carolina Power from Commonwealth & Southern Corp. for $10,200,000. Santee-Cooper had offered $11,600,000. The court denied a review of the case.

The second came when Circuit Judge E. H. Henderson filed an order in Berkeley County, S. C., quashing a Santee-Cooper demurrer and ordering trial on the utilities' suit to prevent the authority from entering a contract to supply power to REA cooperatives now served by them.

Carolina Power & Light joined with the two South Carolina utilities to prevent Santee-Cooper from duplicating their lines.

Recently a group of cooperatives formed an association and obtained a $7,000,000 REA loan to construct transmission lines from Santee-Cooper. The Authority would eventually own the lines, which the power companies say parallel present ones. Santee-Cooper has refused offers to use present private lines for transmission of its power to the co-ops.

•

Powdered Coal and Fuel Oil Keep Diesel Going

An experiment to determine the practicability of operating a diesel engine on a mixture of fuel oil and pulverized coal is going on at the North Carolina State College.

Prof Robert B. Rice of the Diesel School, who is conducting the experiment, said he started with a mixture of 90% fuel oil and 10% finely powdered coal. He kept reducing the amount of oil and increasing the amount of coal. Now, with an emulsion-like mixture of 45% coal, the diesel will run for long periods. The mixture does not clog the cylinders though it tends to foul the fuel system.

•

To be Standby Plant

Operations are being reduced at the New York State Electric & Gas Corp Riverside Plant at Elmira. The plant will become an emergency standby plant.

Electric Power & Light Dissolution Plan Okayed

Federal Judge John W. Clancy has approved a plan for dissolution of Electric Power & Light Corp, denying a motion by an opposing stockholder committee for a stay in the proceedings. His action was believed to be the first in history in which a federal judge confirmed a contested dissolution plan directly from the bench. Company spokesmen said the plan would be put into effect immediately after the required 10-day notice to stockholders.

Under the plan, EP&L will form a new holding company to be known as Middle South Utilities, Inc, to which it will transfer its holdings in Arkansas Power & Light Co, Louisiana Power & Light Co, Mississippi Power & Light Co, and New Orleans Public Service, Inc.

Then the three series of preferred stocks of EP&L will be retired through exchange of the new Middle South common and Electric Power's holdings in United Gas Corp.

EP&L's common and warrant holders will receive the residual assets, consisting of $6 million in cash and undistributed stocks of Middle South and United Gas.

•

Doubt Constitutionality of PUD Acquisition Bill

Legal advisors of Washington's Gov Arthur Langlie admit "there is a question of doubt" as to the constitutionality of the recently passed bill that allows two or more PUD's to acquire private utility property (EW, Mar 26, p 69).

Washington's constitution forbids one law to cover more than one subject. State lawyers argue that this bill has a single topic: "The conservation and development of our (Washington's) electrical resources." Attorneys favoring the privately owned power companies have said there are three—the authorization of a PUD combine, formation of a state power commission, and authority for PUD's to make voluntary payments to school districts to compensate for tax losses due to removal of private utilities from tax rolls.

•

Generator Blows Up

Damage estimated at $100,000 resulted to a Tennessee Valley Authority hydro plant when a 10,500-kw generator blew up Apr 14, injuring a plant operator. The accident occurred at the Ocoee No. 2 diversion dam near Parksville, Tenn.

SEC RULINGS

General Public Utilities Corp, New York, has been permitted to sell its remaining stock interest (92,356 common shares) in New York State Electric & Gas Corp to a dealer-manager group headed by The First Boston Corp, Lehman Brothers, Wertheim & Co, and Merrill Lynch, Pierce, Fenner & Beane. These shares represent the balance of its holdings of 880,000 shares of New York State stock offered to GPU stockholders at $41 per share. Sale of the remaining shares was exempted by the commission from competitive bidding. (Release No. 8953).

Oklahoma Gas & Electric Co's common stock financing proposal has received SEC clearance. Under the proposal, 89,000 shares of the $20 par common stock of Oklahoma would be offered for subscription by stockholders of record Mar 23, 1949, at the rate of 1 10 of 1 share for each share then held, the subscription price being $32.50 per share. As owner of 500,025 shares of the Oklahoma stock, Standard Gas & Electric Co proposes to exercise its right to subscribe for 50,002 of the additional shares, plus shares unsubscribed by others. Standard states that it intends to sell in the near future 200,000 shares of the Oklahoma Gas stock (plus any shares purchased on oversubscription), or in lieu thereof to sell an equivalent dollar amount of shares of the common stock of Louisville Gas & Electric Co of Kentucky. (Release No. 8954).

Illinois Power Co, Decatur, has received authorization to offer 200,000 shares of cumulative serial preferred stock ($50 par) for sale at competitive bidding. The dividend rate, offering price, and underwriting terms are to be determined by the bidding, the commission reserving jurisdiction over the results of the bidding. Proceeds of the financing would be used to pay off short-term bank loans of $10,000,000 obtained for construction purposes. The company's construction program calls for expenditures estimated at $34,000,000 for 1949 and $61,000,000 for the years 1950 to 1953. It is estimated about $60,000,000 of additional financing will be required during such period. (Release No. 8960).

MEETINGS

Edison Electric Institute
Engineering Committee, Edgewater Beach Hotel, Chicago, May 2-4. Meter and Service Committee, Hotel Somerset, Boston, Mass., May 4-6; Joint Meeting with Association of Edison Illuminating Companies Metering and Service Methods Committee, May 5; Purchasing and Stores Committee, Jefferson Hotel, St Louis, May 9-11.

★ **Commercial Electric Cooking Conference**
Madison Hotel, Atlantic City, May 25. Annual Meeting, Traymore Hotel, Atlantic City, May 31-June 2; Hydraulic Power Committee, Shirley Savoy Hotel, Denver, Colo., June 22-25.

Association of Iron and Steel Engineers
Annual Spring Conference, Lord Baltimore Hotel, Baltimore, Md., May 2-3.

National Electrical Wholesalers Association
Annual Convention, Netherland Plaza Hotel, Cincinnati, Ohio, May 2-6.

Indiana Electric Association
Annual Young Men's Utility Conference, Ipalco Hall, Indianapolis, May 2-3.

American Society of Mechanical Engineers
Spring Meeting, Hotel Mohican, New London, Conn., May 2-4.

Missouri Association of Public Utilities
Annual Convention, Muehlebach Hotel, Kansas City, Mo., May 4-6.

Electrochemical Society
Spring Meeting, Benjamin Franklin Hotel, Philadelphia, Pa., May 4-7.

Missouri Valley Electrical Association
Accounting Conference, May 5-6; Annual Meeting, May 17. All meetings at the Hotel President, Kansas City, Mo.

Southeastern Electric Exchange
Power Sales Conference, Henry Grady Hotel, Atlanta, Ga., May 5-6.

Pennsylvania Electric Association
Spring Meeting, Prime Movers Committee, William Penn Hotel, Pittsburgh, Pa., May 5-6.

★ **Industrial Sales Conference**
Bedford Springs Hotel, Bedford Springs, Pa., May 5-6; Transmission and Distribution Committee, Irem Temple Country Club, Dallas, Pa., May 12-13; Spring Meeting, Meter Committee, Abraham Lincoln Hotel, Reading, Pa., May 19-20.

★ **Rural and Advertising Committees**
Joint Meeting, State College, Pa., June 8-9.

Southeastern Industrial Power Conference
Sponsored by General Electric Co and Southeastern Electric Exchange, Henry Grady Hotel, Atlanta, Ga., May 5-6.

Northwest Electric Light & Power Association
Business Development Section, Hotel Utah, Salt Lake City, May 9-11, Personnel Section, Benjamin Franklin Hotel, Seattle, Wash., May 25-27; Accounting & Business Practice Section, Vancouver Hotel, Vancouver, B. C., June 23-24.

American Public Power Association
Annual Convention, Ambassador Hotel, Los Angeles, Calif., May 10-12.

Instrument Society of America
Spring Meeting, Royal York Hotel, Toronto, Canada, May 12-13.

★ **Interstate Power Club of New York**
May Meeting, Hotel Martinique, New York, May 16.

National Fire Protection Association
Annual Meeting, Fairmont Hotel, San Francisco, Calif., May 16-19.

New Jersey Utilities Association
Spring Meeting, Seaview Country Club, Absecon, N. J., May 20.

Pacific Coast Electrical Association
Annual Meeting, Coronado Hotel, San Diego, Calif., May 25-27.

★ **Conference on Protective Relaying**
Under Auspices of Georgia Tech Engineering Extension Division, Georgia Institute of Technology, Atlanta, Ga., June 16-17.

Public Utilities Advertising Association
Annual Meeting, Netherland Plaza Hotel, Cincinnati, Ohio, June 20-21.

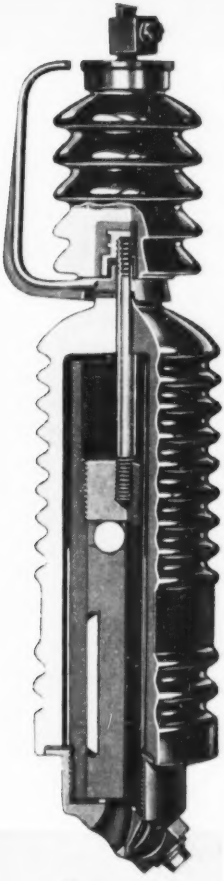
American Institute of Electrical Engineers
Summer General Meeting, New Ocean House, Swampscott, Mass., June 20-24. Pacific General Meeting, Fairmont Hotel, San Francisco, Calif., August 23-26.

American Society for Engineering Education
Annual Convention, Rensselaer Polytechnic Institute, Troy, N. Y., June 20-24.

American Society for Testing Materials
Annual Meeting, Chalfonte-Haddon Hall Hotel, Atlantic City, June 27-July 1.

Canadian Electrical Association
Annual Meeting, Banff Springs Hotel, Banff, Alberta, Canada, June 28-30.

★ Additions this week.

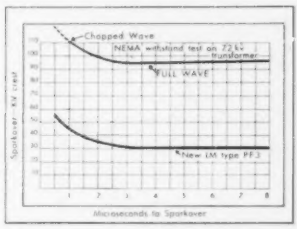


The arc that blows itself out

It's an old gag to a type PF arrester—but an arc will fall for it every time! The low sparkover distances at *A* trap the arc into a tight spot in the wedge-shaped fibre arcing chamber. The arc forms gas that blows it into a long arc at *B*—and blows it right out of the bottom vent with a bang! Works like a charm—without fail—in a half cycle or less! The arc doesn't stay at *A* long enough to burn the center electrode—so the arrester doesn't get hurt in the process. Better get the whole story—in this new Bulletin LA3. Ask the L-M Field Engineer for a copy or write Line Material Co., Milwaukee 1, Wis.

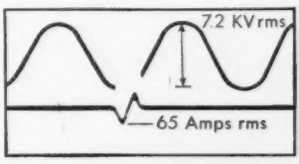
LM's new type PF3 Expulsion Arrester

Gives you lower impulse sparkover . . . greater transformer protection



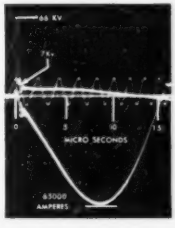
Curves at right show critical sparkover values of a 9 kv L-M PF3 arrester, compared with the minimum impulse strength of a 7200 volt transformer required by NEMA standards. Plenty of safety margin here!

PLUS
prompt interruption of follow current



Under extremely heavy lightning surges the expulsion action is so effective that the arc is blown out and follow current interrupted almost before it starts. In any case, follow current is interrupted at the first current zero. Oscillogram shows 65 amp follow current drawn for .1 cycle with a 35000 ampere surge on a 7200 volt line with 1200 amps fault current capacity.

No limit on capacity . . . Long life



While the oscillogram shows only the NEMA-standard 65000 amp discharge test, obviously the PF3 is designed to meet this test with an ample margin of safety. ● There is no limit to the system capacity on which the PF3 may be used. ● The arc switching feature virtually prevents burning of the electrodes, assuring long life for the arrester with no appreciable increase in sparkover values.

Many Features You'll Appreciate

Heavy wet process porcelain housing with ample leakage distances . . . heavy external gap . . . Umbrella-type rain-shield is moisture-sealed above and below with heavy resin-coated gaskets . . . strong clamp-type terminals . . . Horn-fibre tube and fibre plug with wedge-shaped arc-switching chamber . . . choice of flat or cross-arm mounting hangers. In 3, 6, 9, 12, and 15 kv sizes.

LINE MATERIAL Lightning Arresters

Complete Coordinated Equipment for All Distribution Requirements

THE AWARD WINNERS

THOMAS W. MARTIN Rural Electrification Award is presented to L. L. Koontz, right, Appalachian Electric Power Co, by E. C. Easter, representing Mr Martin

LAURA McCALL home service award for Division A is presented to Mrs Lucile Ramirez, Washington Water Power Co, by *McCall* representative

LAURA McCALL award, Division B, is accepted by Miss Margaret Schneider, Wheeling Electric Co, from A. P. MacNamee, *McCall's*

LAURA McCALL award, Division C, is presented to Miss Elizabeth Parker, Georgia Power Co, one of the three winners in this division

LAURA McCALL award, Division C, is given Mrs Kathryn Spencer, home service advisor, Indianapolis Power & Light Co, by Mr MacNamee

Presentation of Trophies at the EEI Sales Meeting

GEORGE A. HUGHES award for commercial electric cooking promotion is accepted by H. R. Jones, right, West Penn Power Co, Pittsburgh

GEORGE A. HUGHES award for electric water heater promotion is presented to Fred A. Compton, right, sales manager, Detroit Edison Co

GEORGE A. HUGHES award for electric kitchen promotion is presented to H. C. Rice, right, domestic sales manager, So. California Edison

GEORGE A. HUGHES award for domestic electric range promotion is accepted by R. H. Ashworth, Utah Power & Light Co vice-president

YOU CAN BE **SURE**.. IF IT'S

Westinghouse

"so far as I am concerned, the 'CSP' is the only transformer"

What backs up this statement by the manager of a southern co-operative, about the "CSP"* Completely Self-Protecting transformer?

In August, 1947, the most severe wind and lightning storm in his long experience lashed the area served by his company. Five breaks in the line were reported, plus two breaks in the neutral. Service trucks were rushed out—and, naturally, they carried replacement transformers.

But not one "CSP" transformer had failed!

This striking proof of the lightning protection built into "CSP" transformers is one reason why 1,050 transformers in the 520 miles of line in this system are "CSP" units. And why only 50 are conventional type.

One thing is sure: the built-in lightning protection of "CSP" transformers lowers maintenance costs. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa.

J-70525-A

*Trademark—Reg. U. S. Pat. Off.

HERE'S PROOF FROM U. S. A.—Thirty case histories of Completely Self-Protecting transformers, with names, dates, places, facts and figures. Get your copy of B-4248.

Call the Westinghouse Salesman

Westinghouse "CSP" TRANSFORMERS

SINGLE PHASE **THREE PHASE** **BANKED SECONDARY**

Kansas P&L Stock to Go to N. American Holders

North American stockholders are to get 100% of the common stock of Kansas Power & Light Co if they exercise their rights. The distribution is subject to North American's receipt of the Kansas stock from North American Light & Power Co in the liquidation of that company and to the approval of regulatory authorities.

Kansas P&L's 3.8 million shares of $5 common are to be reclassified into 2,143,158 shares of $8.50 par value. North American proposes to distribute these on July 1 to its stockholders on a 1 for 4 basis as of June 3.

No fractional shares of KP&L will be issued, but script will. If script holders do not get together, the script agent will sell KP&L stock represented by the script and will divide the cash received among the script holders.

•

Consolidated Edison, N. Y., Rate-Cut Stay Revoked

The Consolidated Edison Co of New York has been ordered to reinstate a 10% cut in electric rates. The order came from the New York Court of Appeals in acting on a petition of the Public Service Commission from a recent ruling of the Appellate Division. This ruling had stayed the PSC order to the utility to reduce its electric rates $21,500,000 annually.

New York's highest court made its ruling on the basis of legal technicalities. Next month, the Appellate Division is expected to take up the merits of the increase.

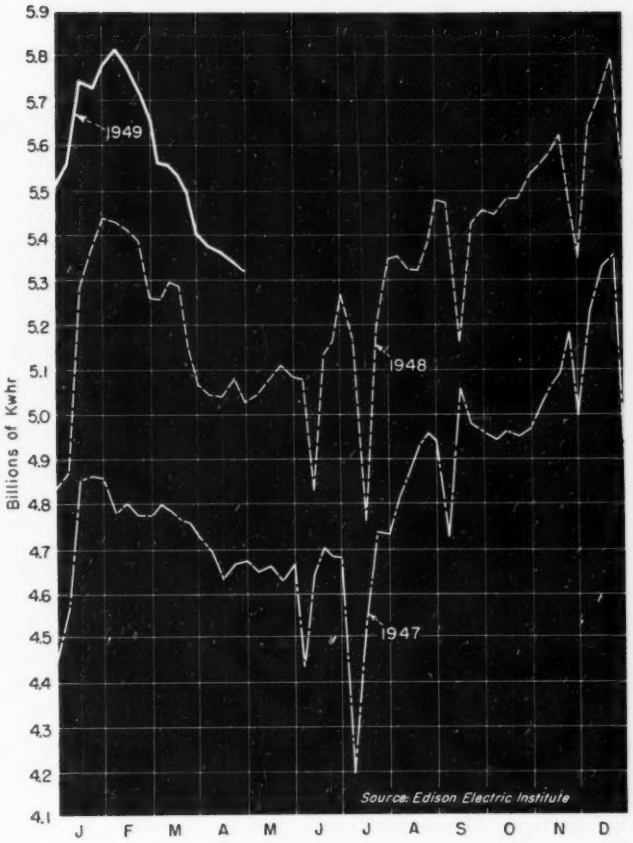
•

Canadian Power Statistics

Production of electrical energy and consumption of primary power in Canada continued on the 1948 trend in January. The former was down, the latter up. Production in January was 3,697,435,000 kwhr, and primary power consumption was 3,404,571,000 kwhr. Exports to the United States were the highest since last July.

The following statistics reported by the Dominion Bureau of Statistics are in thousands of kilowatt hours:

Period	1949	1948
January	3,697,435	3,754,174
Primary	3,523,625	3,510,116
Secondary	173,810	244,058
Primary Consumption	3,404,571	3,397,380
Exports to U. S.	149,186	128,928
Period	**1948**	**1947**
December	3,694,696	3,729,731
Primary	3,541,508	3,495,143
Secondary	153,188	234,588
Primary Consumption	3,415,037	3,388,899
Exports to U. S.	138,202	125,154



Output Moves Downward Again

The electric output curve moved downward again during the week ended Apr 23, 1949, according to figures released by the Edison Electric Institute. The amount of electrical energy distributed by the electric light and power companies of the country totaled 5,325,513,000 kwhr, comparing with 5,342,731,000 kwhr for the preceding week.

During the corresponding week last year, ended on Apr 24, the total output amounted to 5,027,280,000 kwhr, this year's figure representing an increase of 5.9%. This percent change was a slight increase over that reported for the week ended Apr 16, when a 5.0% increase was shown.

Both the New England and the Mid-Atlantic States remained in the minus column, the former with a decrease of 2.2% and the later with the small drop of 0.6%. For the preceding week the Mid-Atlantic group reported a decrease of 2.3%.

The largest individual gain was reported by the Pacific Coast States, 11.7%, with the West Central group running a close second—11.0%. The Southeast States ran third.

Weekly Output, Millions Kwhr

1949	1948	1947
Apr 23 5,326	Apr 24 5,027	Apr 26 4,668
Apr 16 5,343	Apr 17 5,087	Apr 19 4,660
Apr 9 5,360	Apr 10 5,033	Apr 12 4,620
Apr 2 5,378	Apr 3 5,037	Apr 5 4,693
Mar 26 5,404	Mar 27 5,065	Mar 29 4,729
Mar 19 5,496	Mar 20 5,145	Mar 22 4,759
Mar 12 5,531	Mar 13 5,285	Mar 15 4,764
Mar 5 5,552	Mar 6 5,293	Mar 8 4,787
Feb 26 5,559	Feb 28 5,252	Mar 1 4,797
Feb 19 5,650	Feb 21 5,254	Feb 22 4,778
Feb 12 5,722	Feb 14 5,385	Feb 15 4,778
Feb 5 5,778	Feb 7 5,412	Feb 8 4,801

Percent Change from Previous Year

	Apr 23	Apr 16	Apr 9
New England	— 2.2	— 3.8	— 1.2
Mid-Atlantic	— 0.6	— 2.3	+ 1.2
Central Industrial	+ 6.3	+ 4.5	+ 6.3
West Central	+11.0	+10.4	+13.6
Southeast	+ 8.9	+ 8.9	+10.1
South Central	+ 5.0	+ 6.7	+ 5.0
Rocky Mountain	+ 8.8	+12.1	+12.6
Pacific Coast	+11.7	+11.0	+ 9.5
Total United States	+ 5.9	+ 5.0	+ 6.5

IN THE INDUSTRY

RICHARD N. LARKIN

IT PROBABLY is true that many Americans who think consciously about the British government's nationalization of electric power consider it to have been essentially a socialistic move by a Socialist government, ideologically motivated and without broad, specific public support.

But if some British experts to whom we talked recently are to be believed—and we feel they are—any such belief just doesn't fit the facts.

The story of the British grid, and its motivation, is pretty well known in this country. The circumstances which led to that amalgamation, 20-odd years ago, of generation and transmission into a quasi-public power supply agency were less ideological than practical. There had been a failure to do the most effective power supply job possible. For instance, the grid had to settle the ac-dc problem and fix one frequency. Such decisions, so recently made, show that the need for the grid was real and recognized.

By itself, the grid concept was unable to remedy the full needs of British power supply. There remained 541 distribution systems, of which 362 were municipals. With boundless opportunity to get together for improvement of power supply to the ultimate customers, they were unable to do so.

The reasons, it appears, were human enough. In some cases, the logical fusion would have seen municipals and private undertakings combine. Who steps down in such a case? It's a problem we experienced in this country during the war, when the fusion at stake was not ownership but merely interconnection.

In other cases, the logical fusion might have been between prosperous undertakings and less prosperous systems. That's a problem which isn't unknown over here, either. You can find numerous statements by REA officials urging co-ops that have exploited their territories quite well not to sit back and ignore the less attractive fringes.

Among all these autonomous distributors, there seems to have continued a vast lack of standardization. In London alone, you might have required any of five different light-duty outlet plugs, or any of three different heavy-duty plugs. If you changed your address, you stood a good chance of having to change your appliances rather radically. To a much smaller degree, this too is a problem which isn't unheard of in the United States.

In any event, the fact that the reasons for failing to get together might have been understandable wasn't enough to make them acceptable. As a consequence, local distributors, whether municipal or private, have been deprived of their chance to do the job, and the responsibility has been made national. And you can find people who ought to know who'll tell you that substantially the same operating effects would have been achieved under the Conservative Party had it been returned to power in 1945.

It remains true, of course, that such defects as these can be cured well short of nationalization. Probably had the Conservatives returned to office in 1945, Britain's power shuffle would have been confined to operations and not extended into ownership.

TECHNICAL NOTES

ARCHER E. KNOWLTON

Electrodeposition results in smooth, well-bonded deposits of the crystals from densely populated atoms parallel to the cathode surface.

Wind power may be dormant here but Britain is planning research to ascertain the amounts available and the relative merits of possible sites in relation to their Grid.

Breaker interrupting capacity is virtually independent of the inherent restriking-voltage severity of the circuit if a resistor is shunted across part of the main contact path during interruption.

Conductor vibration would be nearer solution and control if the relationship between tension and susceptibility to vibration were better understood.

Oil-in-pipe cable, particularly generator leads, can be used at increased current rating or with decreased conductor size if means are provided for circulating and cooling the oil.

Successful reclosure of distribution circuits in less than a second has somewhat lessened the urgency of self-clearing on the part of lightning arresters and has given the plain spill gap correspondingly increased scope.

Cable spinning in the air is not too practicable if the spinner has to be passed through trees.

Bus joints, especially in isolation enclosures, should be thoroughly tested for tightness and sustained conductivity.

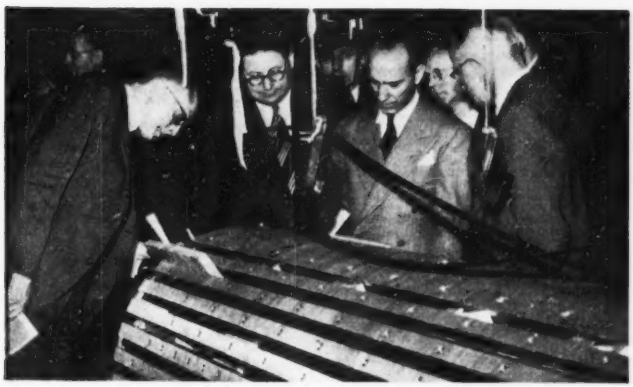
Insulation-quality testing is worth more than for just immediate detection of incipient weakness; it provides data for uncovering a drift.

Minimum operating current is a good thing to determine for newly installed control and protective equipment because it should disclose misalignment, friction, poor contacts, etc.

Control wiring in plants operated even though not finished has to be safeguarded so that construction forces will not cross it up and cause outage.

Ample working-space and climbing-space are prime requisites of pole-top safety.

MANUFACTURERS and MARKETS



AMONG ELECTRIC POWER EXPERTS of nine European nations, receiving Marshall Plan aid, who arrived in New York recently, was this group shown at the Westinghouse Electric Corp's East Pittsburgh Works. Discussing the method of installing the field coils in a generator motor are (l to r) A. W. Zuidweg, Netherlands; Francois Mandres, Luxemburg; (extreme right) Dr F. W. Van Berckel, also Netherlands, with Westinghouse officials

GE Reports 12% Sales Rise, Expansion Plan in Effect

General Electric Co has now "substantially completed" a $500,000,000 investment in plant and equipment and is prepared to compete "hard and aggressively" for the home and industry market, Charles E. Wilson, president, told the nearly 1,500 stockholders who attended the recent annual meeting.

Mr Wilson announced that profits of GE and its consolidated affiliates in the first quarter of 1949 were 5% higher than in the same period of 1948. He said the investment represented an expansion program carefully plotted and started before the war. He said it "does not at all reflect mere post-war boom demands." He added that GE had no further major construction projects under consideration.

Declaring that the company had entered upon this expansion after a thorough analysis of the potential markets for electrical apparatus and equipment, Mr Wilson asserted: "We have felt all along and we feel now that this is not an age for hedging or retreat but for positive action."

The company paid a dividend of 50¢ a share on Apr 25 for the first quarter, compared with 40¢ last year.

He revealed GE's profit available for dividends in the first three months of this year was $26,702,978, or 93¢ a share of common stock. Earnings in the first three months of 1948 totaled $25,389,149, or 88¢ a share. Consolidated net sales billed in the first quarter of 1949 totaled $411,615,528, or 12% more than the $365,957,990 billed in the similar period a year ago.

Mr Wilson said a vital part of expansion program was devoted to increasing efficiency and lowering costs, to streamlining facilities as well as increasing them. "We are now in a position to collect some of these dividends. We aim to get there first with what our customer wants and can afford to purchase."

Recently GE price reductions, he said, should result in savings of $40,000,000 to consumers.

•

Okonite Opens New Office

On May 1, The Okonite Co, Passaic, N. J., will open a new office in Dallas, Tex., at 1505 Tower Petroleum Building, with Otis W. Herring as manager. Mr Herring was formerly in the company's Birmingham office. The Dallas office will .e under the supervision of the Birmingham district.

ECA Bolsters European Industry, Haddon States

Marshall Plan dollars have almost finished the job of saving Europeans from a hand-to-mouth existence and now are being funneled into industrial activity, "which is the real foundation of political stability", W. C. Haddon, representative of the Westinghouse Electric International Co, recently stated at a luncheon meeting in Flint, Mich.

Mr Haddon stated that the "magnetic force" of these dollars also is spotlighting the Russian system as one of 'take' rather than one of 'give and take.'"

Impact of ECA

"At this time," he said, "we are standing face to face with Russia everywhere in the world, determined that this generation will not see another Munich. In carrying out this determination, our greatest asset is our economic machine and its strength is best represented by operations of the Economic Cooperation Administration. The impact of ECA is most clearly evidenced by the manner in which our products and services have created a pattern of recovery in Western Europe. However, even if it had no other reason for existence, the ECA could be justified on the basis that it has brought the message of U. S. enterprise behind the Iron Curtain and forced the people of Eastern Europe into a comparison of economic systems."

Cautions on Methods

However, the Westinghouse representative cautioned America to make sure that the production equipment going abroad is not wasted through old-fashioned operating methods. "If we succeed in teaching the Europeans a few of our ways of doing things, we can cut down on the amount of equipment and materials they will need and increased production will help these countries to stand on their own feet instead of ours," he said.

Westinghouse long has been exporting industrial "know-how" through technical assistance agreements with certain companies abroad, Mr Haddon

said, and feels that the best means of transferring such information is through private industry on a business basis rather than through Government channels. There is no necessity for the U. S. to give away its "know-how" with no strings attached, he added.

•

New Output Standard Set Up for Crossarm Braces

Hubbard & Co, with factories at Pittsburgh, Chicago, and Oakland, Calif. has pioneered an entirely new production standard in the manufacture of flat steel crossarm braces. All Hubbard crossarm braces are now made with rounded ends. Easier handling, greater safety, and neater appearance are achieved by the rounded-end design. Accidents involving lost time are reduced in number by the elimination of sharp corners.

•

GE Cuts Motor Prices

Price reductions, ranging from 3 to 14% on some models of fractional-horsepower motors, have been announced by the General Electric Co.

The reductions affect standard sump-pump motors, oil-burner motors, belt-drive fan motors and certain horsepower ratings of standard jet pump motors, according to M. E. Lord, manager of the company's fractional horsepower divisions. He said the reductions applied only to these definite-purpose models that no general price change was contemplated.

•

Light Bulb Prices Cut

Price reductions averaging 8% and ranging up to 11% for virtually its entire line of automotive type light bulbs have been announced by Westinghouse Lamp Division at Bloomfield, N. J. Changes are effective May 1.

The retail price of sealed-beam headlamps was cut from $1.35 to $1.25, a reduction of 7.5%. The 11% reduction applied to instrument panel and parking bulbs, which were reduced to 8¢ from 9¢. Spotlight and fog light lamps were included in the reduction.

•

Celebrates Anniversary

Incorporated on July 22, 1899, the Star Porcelain Co, Trenton, N. J., will observe its 50th anniversary on May 19. During the ceremonies a plaque will be unveiled in honor of Herbert Sinclair, its founder.

NEW ELECTRICAL CONSTRUCTION

A weekly selection of U. S. electrical construction projects announced by private and government utility systems involving more than $70,000. Also listed are major industrial and construction jobs where electrical work is indicated or implied

UTILITIES

Proposed Construction

Ala., Sheffield—City Power & Water Dpt., Sheffield, warehouse and office, $100,000. Extended date. Howard A. Griffin, Jr., Sheffield, archt.

Arizona-Nevada—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing del. f.o.b. cars shipping point or f.o.b. cars Kingman (Louise) Ariz., one prefabricated bldg. for 230 kv switchyard service bldg., Davis Power Plant, Davis Dam Proj., Spec. 2641, L. N. McClellan, ch. engr.

Ark., North Little Rock — Arkansas Power & Light Co., Pine Bluff, Lynch Plant expansion, near here, **$5,000,000.**

California — Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., 9 distr. boards, 1 distr. panel board, one 125 volt battery control and distr. board, two 10-kw battery chargers, 2 fire-control cabinet assemblies, two 150 kvva and one 75 kva transformers, 20 thermostats, 3 pressure and 3 temperature switches for Tracy Pumping Plant and Switchyard, Central Valley Proj., Spec. 2642, L. N. McClellen, ch. engr.

Georgia — Flint Electric Membership Corp., Reynolds, 445 mi. rural distr. lines, sys. imprvs., Taylor Co. **$880,000.**

Illinois—Norris Electric Co-operative, Newton, 669 mi. rural distr. lines, sys. imprvs., 5 mi. tie lines, two-way radio communication sys., Jasper Co. **$1,150,000.**

Indiana—American Telegraph & Telephone Co., 32 Avenue of Americas, New York, N. Y., 6 relm.-con. relay test towers and stations, consisting 6 story, 26x26x132 ft. high tower, Goshen, **$50,000**; 8 story 26x28 191 ft. high, Mishawaka, **$75,000**; 26x28x191 ft. high Angola, **$75,000**; 7 story, 26x26x161 ft. high, Laporte, **$60,000**; 26x26x190 ft. high, south of LaPorte, **$85,000**; 26x26x161 ft. high La Grange, **$60,000**, W. Devilbiss, 153 Union Commerce Bldg., Cleveland, O., consult. engr.

Ind., Ft. Wayne—State P. Wks. & Supply Dpt., W. P. Mybeck, dir., 404 State House, Indianapolis, steam hospital power plant imprvs., stokers, brick or rein.-con. stack, $150,000. Plans deposit $25. J. Boiz Eng. Co., 814 Merchants Bank Bldg., Indianapolis, engr.

Maine—Swan's Island Electric Co-operative, Swan's Island, 27 mi. rural distr. lines, generating facilities, etc., Swans Island Co. **$126,000.**

Minnesota—Northern Electric Co-operative Assn., Virginia, 393 mi. rural distr. lines, sys. imprvs., 15 mi. tie lines, 26 mi. transmission lines, headquarters facilities, St. Louis Co. **$1,185,000.**

Mississippi — Singing River Electric Power Assn., Lucedale, 214 mi. rural distr. lines, sys. imprvs., Jackson Co. **$125,000.**

Missouri-Iowa-Nebraska — Northwest Bell Telephone Co., 19 and Douglas Sts., Omaha, Neb., layine cable from Kansas City, Mo. to Council Bluffs, Ia., and on to Omaha, Neb. **$6,500,000.** A. L. Turner, c/o owner, ch. engr.

Nebraska—Butler County Rural Public Power Dist., David City, rural distr. lines, Butler Co. **$1,040,000.** Raymond H. Reed & Co., Columbus, consult. engr.

Neb., Omaha — Omaha Public Power Dist., 17 and Harney Sts., warehouse storage addn. to power plant, day labor. Approx. **$70,000.** C. W. Minard, c/o owner, ch. engr.

N. M., Lovington—Lea County Electric Co-operative, Inc., R. B. Moore, mgr., Lovington, plans by Continental Engineers, engrs. and archts., 1310 Avenue O, Lubbock, Tex., 2 story power plant, incl. two 1,200 kw. generators, diesel powered, **$1,250,000.**

South Dakota—Cam-Wall Electric Co-operative, Selby, 983 mi. rural distr. lines, completion of previously approved constr., Walworth Co. **$1,515,000.** Banister Eng. Co., 1549 University Ave., St. Paul, Minn., consult. engr.

Texas—Erath County Electric Co-operative Assn., Stephenville, rural distr. lines, Erath Co. **$1,080,000.**

Texas — Jackson Electric Co-operative, La Ward, rural distr. lines, Jackson Co. **$530,000.**

Tex., Ganado—South Texas Generating Co-operative, Victoria, gas turbine generating plant, near here. **$790,000.**

Tex., Marble Falls — Lower Colorado River Auth., c/o Max Starcke, American Statesman Bldg., Austin, hydro-electric and flood control dam on Colorado River at Granite Shoals, 11 mi. from here, **$5,000,000;** hydro-electric and flood control dam impounding approx. 110,000 acre ft. of water, on Colorado River, 6 mi. below here, **$6,000,000.**

Washington—Bonneville Power Admin., 729 N. E. Oregon St., Portland 8, Ore., Port Angeles substation, Inv. 4575, Clallam Co. Plans deposit $25.

Low Bidders & Contracts Awarded

Iowa—Southwestern Federated Power Co-operative, Creston, Apr. 6, 121.1 mi. 34.5 KV rural distr. lines, Adair, Madison, Warren, Clarke, Lucas, Wayne, Ringgold, Union and Adams Counties, from C. A. Hooper Co., 453 W. Gilman St., Madison, Wis., **$341,673.**

Louisiana—Louisiana Electric Co-operative, Inc., c/o P. E. Randal, mgr., Alexandria, 247 mi. rural distr. lines, Natchitoches, Grant, Rapides, Evangeline, Avoyelles and St. Landry Parishes, from Kincade & Layton, Brookhaven, Miss., **$328,860.** Est. $300,000. Freese & Nichols, 407 Danciger Bldg., Ft. Worth, Tex., engrs.

North Dakota—Capital Electric Co-operative, Bismarck, 372 mi. rural distr. lines, Burleigh Co. to Rue Contg. Co., Fargo, $432,876. Bids 3/31.

Ohio—American Telephone & Telegraph Co., Union Commerce Bldg., Cleveland, twenty 26 ft. square 90 to 250 ft. high television relay towers, to National Concrete Fireproofing Co., Terminal Tower Bldg., Cleveland, **$3,000,000.** Awarded 4/11. A. M. Rose, 750 Huron Rd., Cleveland, Div. Transmission Eng. A.T. & T. Co.

INDUSTRIAL, COMMERCIAL & PUBLIC BUILDINGS

Proposed Construction

Calif., Los Angeles—City Bd. P. Wks., 153 City Hall, plans by Samuel E. Lundeen, 400 Rowan Bldg., health department and receiving hospital, **$6,500,000.**

N. Y., New York—Syndicate, Julius Peribinder, pres., 19 W. 44 St., Zone 18, plans by Sylvan Bien, 565 Fifth Ave., Zone 17, 17 story apartment, at site of former Schwab house at Riverside Dr. from 73 to 74 Sts. **$12,000,000.**

N. C., Chapel Hill—University of North Carolina, W. Reese, Berry Hill, dean, Chapel Hill, 400 bed hospital alterations, addns. to Medical School. Approx. $5,000,000. Northrup & O'Brien, Reynolds Office Bldg., Winston-Salem, archts.

Low Bidders & Contracts Awarded

Va., Virginia Beach—Mayflower Corp., c/o W. Taylor Johnson, Dean Bldg., Plume St., Norfolk, 16 story 272 unit apartment, incl. stores and parking facilities, to Byrne Organization, 2607 Connecticut Ave. N. W., Wash., D. C. Approx. **$3,000,000.** T. David FitzGibbon, Royster Bldg., Norfolk, archt.

L-M Engineers give you this

FUSE CUTOUT BUYER'S GUIDE

and a good example—the

L-M "PVD"

L-M designed the first wet-process porcelain cutout box on the market—more than 20 years ago, and has been the leader in fuse cutout development. Here, according to L-M engineers, is what it takes to *make a good* fuse cutout.

A cutout must keep itself *cool and dry*, so as to keep oxidation and deterioration of the cartridge to a minimum. Openings and leads should keep out rain so the cutout stays dry inside.

Contacts and contact areas should be large, with ample current carrying capacity, and preferably silver-plated. There should be a minimum number of electrical joints.

The cutout should have generous electrical clearance and creepage distances.

For ample rupturing capacity, the cutout should have free venting and a strong tube; and the tube should be securely anchored against recoil.

In a drop-out cutout, link parts should be well separated before the tube drops, so that the arc is cleared in the tube.

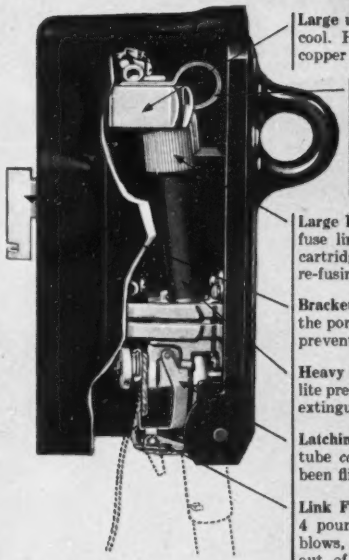
It is desirable to pull link parts straight out, as friction around the end of the tube will slow up the action.

Finally, the cutout must be simple to install. Re-fusing should be simple, and easy, even with gloved hands, to keep outages at a minimum.

GET THIS BULLETIN!

Quick reference to principal L-M open and closed cutouts; ratings, sizes, hangers. Ask the L-M Field Engineer for a copy or write **Line Material Co., Milwaukee 1, Wisconsin.**

IMPORTANT "PVD" FEATURES



Large upper and lower contacts stay cool. Heavy reinforced silver-plated copper U straps; large contact areas.

Vertical Contact Spring: spring-tempered Monel, with silver-plated copper shunt; this spring helps push tube down, follows it part way to give extra clearing time; acts as top recoil absorber.

Large Knurled Cap, silvered, clamps fuse link button firmly into upper cartridge-ferrule. Easy to grasp for re-fusing.

Bracket Stud firmly cemented into the porcelain, not bolted through, to prevent corona and radio noise.

Heavy "Bakelined" Tube: the Bakelite prevents warping; the fibre lining extinguishes the arc.

Latching Lever holds tube in place; tube *cannot* drop till after link has been flipped out of the tube.

Link Flipper and Spring: puts only 4 pounds pull on link. When link blows, flipper pulls it straight down out of tube—especially important in interrupting light fault currents. When flipper is down (dotted line) it releases latching lever, permitting tube to drop.

It signals: the tube is coated with canary yellow plastic; when it drops it is easily seen from the ground—saves "hunting".

DOOR STAYS CLOSED

"PVD" is the original drop-out cutout on which the door stays closed, even after the link blows. This keeps out rain and sleet; the current carrying parts and the inside of the box stay dry, which prevents internal flashover. What's more, sleet on the door does not affect the drop-out operation of the "PVD"

FAMILY PORTRAIT

"PVD's" meet (nearly) all distribution requirements.

The 50 amp "PVD's"	The 100 amp "PVD's"
"PVD" 56 5 kv, 50 amps 10⅛" high	"PVD" 515 5 kv, 100 amps 13¾" high
"PVD" 76 7.5 kv, 50 amps 11⅝" high	"PVD" 715 7.5 kv, 100 amps 14¼" high

ONE-MINUTE RE-FUSING

Door is unhooked and re-fused in 60 seconds or less. Big knurled knobs, easy to handle even with gloves.

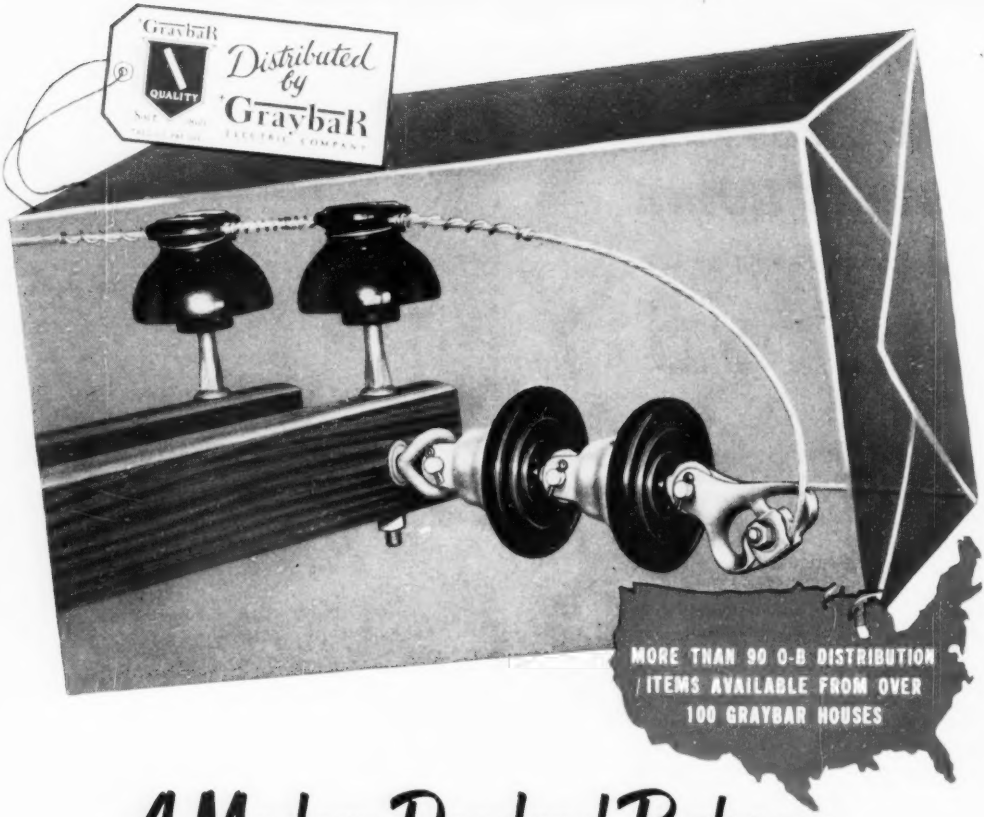
Or 6-second re-fusing

Lineman just opens the door, lifts it off, and hooks on a spare fused door. "PVD" Bakelite doors are interchangeable—you save time when restoring outages.

7087

LINE MATERIAL Fuse Cutouts and Fuse Links

Complete Coordinated Equipment for All Distribution Requirements



A Modern Deadend Package

COMPLETE FROM YOUR LOCAL GRAYBAR HOUSE

Trouble-free distribution deadends are possible only when they combine the highest electrical and mechanical reliability. Primary component of such a deadend is a six-inch O-B suspension insulator which will develop the full working strength of distribution conductors. A unit with high flashover and leakage resistance, it incorporates all the mechanical and thermal characteristics found in O-B high voltage suspension units. Hardware components benefit by years of design experience. You get not only reliable performance but also preservation of the cable and simplified installation.

Finally, these materials, as well as nearly 90 other O-B distribution items, are conveniently stocked at local Graybar houses in 100 locations throughout the country. You can ease your warehousing problems by letting Graybar handle stocking of O-B materials for you. Discuss this plan with your local Graybar representative.

Ohio Brass

MANSFIELD, OHIO

2939-H

Now here's a Connector!!!

It's a Servit. We might call it a split-bolt, a "bug" or even a BURNDY. Mister, I call it a *real* connector.

I can't begin to remember how many thousands I've used. One thing sure—they make my job easier.

If I'm making a tap or a service connection just give me a SERVIT and a wrench.

If you're a "Doubting Thomas" try them . . . see for yourself how SERVITS save and serve!

Connect with

BURNDY

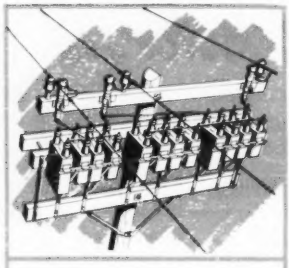
New York 54, N. Y.

WESTERN BRANCH: Vernon 11, California

CANADA: Canadian Line Materials, Ltd., Toronto 13

25

...for Topnotch Performance!



Capacitors provide the quickest and most economical means of relieving system overloads and improving voltage conditions where low power factor loads prevail. Capacitors may be obtained from stock, and installed costs are low...less than $10 per Kvar.

Moloney Capacitors are built to the highest standards of quality to assure the excellence of performance that is expected of any product bearing the name Moloney. Reliability of performance is insured by high factor of safety in design, expert workmanship, careful processing and thorough testing.

Individual capacitor sections are wound of aluminum foil and pure kraft insulating papers. Winding is done under controlled temperature and humidity conditions to assure uniformly wound, wrinkle-free sections.

Sections are individually tested prior to assembly into complete capacitor packs. Multi-layer major insulation is placed in the case, and then the assembled pack is inserted. Sections are then connected in parallel groups and groups are connected in series, with a discharge resistor across each group. The cover, with the bushings already installed, is then welded into place completing the case.

The capacitor is now ready for drying and filling with Askarel. Moisture and air are removed by thermo-vacuum treatment, following which non-inflammable Askarel is used to impregnate the capacitor pack and to completely fill the case. Next the filler openings are sealed off and the capacitor is pressure tested for leaks. The capacitor is then given its final electrical tests and packed for shipment.

ME49-9

MOLONEY ELECTRIC COMPANY

Sales offices in all principal cities

FACTORIES AT ST. LOUIS 20, MO., AND TORONTO, ONTARIO, CANADA

NEWS ABOUT PEOPLE

Iowa Utility Announces Executive Appointments

Several executive and engineering appointments have recently been announced by the Iowa Power & Light Co, Des Moines.

Floyd A. Beaty, chief operating engineer for more than 30 years, has been

FLOYD A. BEATY

named vice-president in charge of operations and John F. McLaughlin, who has been with the company 28 years, has been advanced from superintendent of power to vice-president in charge of power.

Howard Reeve, who has been identified with the company for more than 25 years, has been made manager of the Des Moines district, which includes the city and surrounding areas. He was formerly superintendent of electric distribution. Succeeding Mr Reeve as superintendent of electric distribution is his former assistant G. D. Head. Mr Head has been identified with the utility since 1910.

Other promotions include appointment of Jack Savre as manager of outside districts with headquarters in Des Moines; J. L. Culhane, another 30-year employee, as engineer in charge of transmission and distribution; and J. W. Ferguson as commercial manager in charge of retail sales.

Mr Beaty became identified with Iowa Power & Light's commercial department in 1913. After periods of service in the engineering department as distribution engineer, transmission engineer, power plant design engineer,

JOHN F. McLAUGHLIN

and plant construction engineer, he was made chief operating engineer in 1918.

Mr McLaughlin entered the engineering department in 1920 and served in various capacities chiefly concerned with power plant construction and design until his appointment as superintendent of power in 1942.

Joining the Des Moines utility as assistant overhead engineer in 1923, Mr Reeve was made assistant superintendent of distribution four years later and superintendent of distribution in 1941. Mr Head became identified with the company in 1910 as an apprentice fireman and has worked in this phase of the industry as a foreman and assistant superintendent of distribution.

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Roilo H. Johnson, superintendent of substations in the central division of the Puget Sound Power & Light Co, Seattle since 1935, has been appointed superintendent of light and power in the southern division. He succeeds **J. Ross Roberson**, retired.

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Correction

We regret that the photograph used with the announcement of the appointment of Robert W. Cranston as general superintendent of substations for West Penn Power Co, EW, Apr 23, p 143, was not Mr Cranston's, but that of John F. McLaughlin, Iowa Power & Light Co, shown above.

Marshall Made President, Duke Power; Miller V-P

(See Front Cover)

At a recent meeting of the board of directors of the Duke Power Co, Charlotte, N. C., George G. Allen, New York, was elected to the newly created office of chairman of the board; E. C. Marshall of Charlotte, was elected president; and O. J. Miller, also of Charlotte, was elected a vice-president and general manager.

Mr Allen has been president of the company since the death of James B. Duke in 1925. He has been especially active in the unification and expansion of the properties and facilities of the Duke Power system in the Piedmont section of the Carolinas. As chairman of the board, he will continue his active connection with the company.

Mr Marshall has been connected with the Duke Power interests since 1907,

O. J. MILLER

when he became auditor of the old Southern Power Co. He was treasurer of the Southern Public Utilities Co from its organization in 1913 until 1921, when he became president of that company and continued in that capacity until 1935, when the company was consolidated with the Duke Power Co. He has been a vice-president since 1934. For many years, Mr Marshall has had an active part in the planning and development of the Duke Power system.

The newly elected vice-president, O. J. Miller, has been connected with the company since 1943 and became general manager last year. Before join-

ing the Duke staff, he had acquired a wide experience in the operating field of the electric power industry with the E. W. Clark & Co of Columbus, Ohio, and the Tennessee Electric Power Co as engineer in charge of various operating and constructing activities; superintendent of production, operation, and maintenance; and subsequently manager of the production and transmission department. When the Tennessee Power electric facilities were sold, Mr Miller became manager of the transportation system in Nashville. In 1940 he joined the staff of the Commonwealth & Southern Corp in Jackson, Mich., and then Duke Power.

•

General Cable Elects Three Vice-Presidents

Announcement has been made by the General Cable Corp, New York, of the elections of three new vice-presidents.

They are S. A. Smith in charge of research and development, O. Garner in charge of manufacturing, and A. D. Pettee in charge of product engineering.

•

W. L. Jones, manager of the Craig-Botecourt Electrical Cooperative, New Castle, Va., has resigned.

F. S. Marks has been appointed sales promotion manager of the Rome Cable Corp, Rome, N. Y. Mr Marks formerly served for a number of years as district sales manager in the company's Atlanta (Ga.) office.

W. A. McDonough, formerly secretary and controller of the Northern Indiana Public Service Corp, Hammond, has been made vice-president and controller. **F. E. Thacker,** formerly treasurer, was elected secretary and treasurer.

Dr Willis H. Carrier, chairman emeritus of the Carrier Corp, Syracuse, N. Y., has been honored by the North American branch of the Newcomen Society of England as "the father of air conditioning."

Robert C. Vroom has been appointed executive advisor and consultant of the Peabody Engineering Corp, New York. For many years chief engineer of the company, Mr Vroom is internationally known as an authority in the field of combustion engineering. He is the inventor of many important pieces of equipment and patented devices relating to the combustion of fuels and allied subjects.

G-E Elects R. J. Cordiner Executive Vice-President

Ralph J. Cordiner, vice-president and assistant to the president of the General Electric Co since 1945, has been

RALPH J. CORDINER

elected executive vice-president and a director of the company.

Mr Cordiner began his career with GE in 1923 with Hotpoint, Inc, an affiliate. In 1938 he was appointed manager of the appliance and merchandise department. He was named assistant to the president in 1943 and has been a vice-president since 1945.

Mr Cordiner has been continuously connected with the electrical industry since his undergraduate days at Whitman College in Walla Walla, his earliest association being with the utility branch—the Pacific Power & Light Co. During the war he served as director general of war production scheduling and as vice-chairman of the War Production Board.

OBITUARY

William F. Gannon, retired Delaware, Ohio, branch manager of the Columbus and Southern Ohio Electric Co, Columbus, died on Apr 12. He was 71 years old. Mr Gannon had been with the Columbus utility for 50 years.

•

John S. Ware

John S. Ware, general superintendent of electric distribution for the Public Service Corp of New Jersey since 1930, died in Summit, N. J. on Apr 23 at the age of 62.

Immediately following graduation from Stevens Institute of Technology in 1910, Mr Ware became identified with Public Service in Newark as record clerk in the electric distribution department, River St office. He was named distribution engineer in the general office in 1916 and 10 years later was appointed assistant general superintendent of distribution. When Thomas Sproule, general superintendent of distribution, died in 1930, Mr Ware was appointed to succeed him.

He was active in the old National Electric Light Association, having served on several of its committees, and was a fellow of the American Institute of Electrical Engineers.

•

William von Phul

William von Phul, retired president of Ford, Bacon & Davis, engineers, died on Apr 17 at his home in Larchmont, N. Y., after a brief illness.

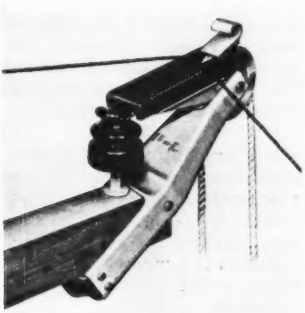
Born in New Orleans 77 years ago, Mr von Phul joined Ford, Bacon & Davis in 1905, becoming a partner seven years later. While with the company, he had charge of reconstruction of street railways in San Francisco after the earthquake and fire in 1906 and was engaged in construction and operation of utility and street railway systems in several Southern cities.

Mr von Phul was president of the United Railroads of San Francisco and of the Market Street Railways in that city before becoming president of Ford, Bacon & Davis in 1922. He held that office for 20 years and then served as chairman of the executive committee for the next two years, when he retired. He was a fellow of the American Association for the Advancement of Science and a member of the American Society of Mechanical Engineers and of other technical associations.

•

James B. Girand, one of the founders of the Central Arizona Project and builder of a large number of dams in Arizona, died on Apr 14 in Phoenix. He was 75 years old. A native of Austin, Tex., Mr Girand went to Arizona in 1897 as a civil engineer for the Santa Fe Railway. After engaging in mine engineering and land surveying he became interested in the construction of dams on the Colorado River and helped draft the early Central Arizona Project plans. Subsequently he surveyed power possibilities on the Upper Salt River above Roosevelt Dam and in the 1920's served as engineer on the Gillespie, Cave Creek, Fry Creek, Willow Creek, and Lone Pine dam projects. From 1929 to 1931 he served as technical consultant to the Republic of Chile in directing the construction of several dams as part of an irrigation project in the Andes Mountains. In recent years he had been in retirement.

NEW EQUIPMENT



Wire Lay-Up Gin

PROTECTING the conductor from skinning, abrasion and kinking by lifting it vertically, directly from truck bed and conductor reel, an aluminum wire lay-up gin is manufactured by Pieper-Lillard, Inc, St. Louis 1, Mo.

Features of the gin include: Special colloidal-graphite wood "bridge" with sliding adjustments; slip fit bracket—no clamp or fastening needed; and broad, curved-faced lay-up hook. The company advises that the 7-lb unit can easily handle a 500-600 lb per span conductor.

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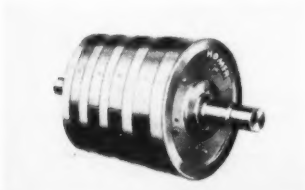
Magnetic Pulleys

TO SEPARATE tramp ferrous metals from products requiring thorough tramp metal extraction during or before processing, Homer Mfg Co, Inc, Dept 75, Lima, Ohio, is producing Power-Plus permanent magnetic pulleys which may be used as either head end or idler pulleys. They are furnished in 57 standard sizes—the diameters being 12, 15, 18, 20, 24 and 30 in. and the belt widths ranging from 4 to 60 in.

Pulleys are crowned to prevent belt weaving and runout and to equalize material passing over them. The manufacturer advises that the pulley design prevents loss of flux to the shaft, thereby eliminating attraction of metal particles to bearing areas.



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Radiant Control Toaster

FEATURING automatic turning on and shutting off of current and automatic lowering and raising (without springs) of the bread slice, a two slice, domestic toaster embodying a new principle of radiant control has been announced by Sunbeam Corp, Dept 50, Chicago 50, Ill.

The manufacturer reports that operation is based on the fact that moisture in the bread is the only accurate index for determining the toasting interval. Employing this principle, a radiation-sensitive device is used which responds only to the heat emitted from the toast surface. When this heat reaches a predetermined value, the current is snapped off and the toast rises.

Heater wires expand to lower the bread and contract to raise the toasted slice. Current is turned on by a thermostat actuated by virtue of the weight of the slice inserted in the slot. It is claimed that whether the bread is moist or dry, thick or thin, and regardless of line voltage, a uniform piece of toast is always delivered.

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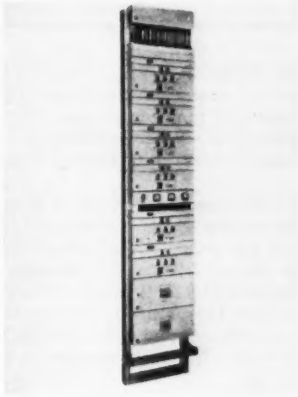
Multichannel Carrier

TO INCREASE communication services by providing telemetering, supervisory control, telegraph and speech plus telegraph channels, a multichannel telegraph system, the FTR 9-E-1, has been developed by Federal Telephone and Radio Corp, 100 Kingsland Rd, Clifton, N. J. Up to 18 duplex circuits, or speech plus six duplex circuits, are available for each four-wire voice channel in this system.

Number of channels installed initially may vary because each channel has individual transmitter and receiver panels.



The system is suitable for one way and drop channel operation and can be supplied with equipment for adjustment and maintenance. Either frequency modulation or amplitude modulation may be specified.

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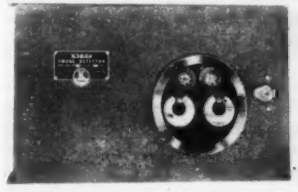
Smoke Detector

FOR EARLY DETECTION of incipient fires in hazardous plant and warehouse areas, a single unit smoke detector has been developed by Walter Kidde & Co, Inc, 675 Main St, Belleville, N. J.

In operation the unit samples filtered air (dust and dirt free) passing across a photoelectric cell. Smoke in the air sets off an alarm through an electric circuit to a control panel. Designed as the nerve center of the detector, the panel not only transmits fire alarms but also warns of mechanical and electrical disturbances within the apparatus.



ELECTRICAL BUSINESS OUTLOOK

NO RECESSION YET. That's the indication from first reports of spring business activity. The serious drop feared by many forecasters just isn't taking place. And utility executives should be able to plan, for the next few months at least, on a surer basis.

Forecasters who expected a serious slide were worried chiefly by the winter rise in unemployment. But this has turned out to be mostly seasonal. The total of almost 3½ million unemployed in February dropped slightly in March. Weekly claims for unemployment insurance have been falling off since. So there are now probably less than 3 million people out of work. That's not unusual in good times.

Retail store sales, which lagged after Christmas, have been recovering. Easter buying came later this year. But it was heavy. The stores did about the same dollar volume of business as last season. And they sold more units, since prices were lower.

Manufacturers' sales should soon reflect this increase in retail volume because many stores' inventories are extremely low. Manufacturers' orders should also be stimulated by price cuts announced on a wide variety of products, from woolen goods to diesel locomotives. And as manufacturing steps up, power sales will benefit.

The decline in homebuilding—which could seriously affect both business activity and residential power sales—is being halted. A survey of homebuilders conducted by two McGraw-Hill magazines reveals they plan to put up about as many units this year as in 1948. But dollar volume of building will be off.

A look at the business indices shows they are now slightly below last autumn's peak. Personal income has eased 1%, total employment 1½%, industrial production 3% or more, and wholesale prices 5%. But such small changes do not spell anything like a serious recession. They are mostly smaller than the 1947 decline in business indicators. No one remembers a recession then.

It's worth noting that the biggest decline is in prices. That doesn't hurt the demand for power. In fact, it helps. Price cuts prevent new orders and industrial production from falling off too sharply. And with new construction of homes and factories still going strong, power sales should keep increasing.

Power use will take its usual dip this summer when factories shut down for vacations. Production figures will drop for the same reason. But the general level of business and power demand now seems likely to stay high at least until Labor Day.

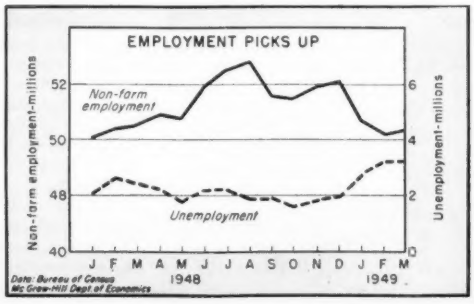
GOVERNMENT POLICIES will shape the business outlook thereafter more than any current economic factor. Congress could stick to the original $15 billion military budget and also pass the $4 billion tax increase recommended by President Truman. That would put a crimp in private spending without any offsetting increase in the government's program. And business might suffer a severe deflation.

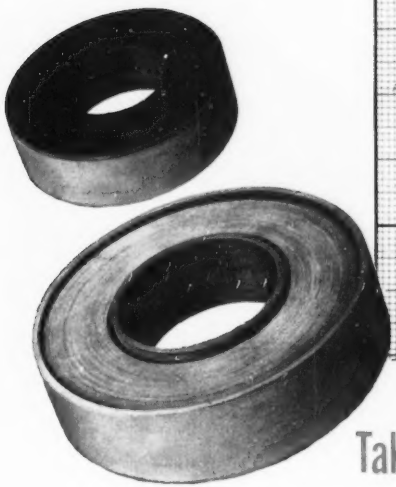
On the other hand, Congress may not vote a tax increase. Military expenditures now seem likely to run a billion dollars higher than originally budgeted. And there's the possibility of another billion or so to arm European nations. Congress also has before it a bill requiring extra billions to support farm prices. If all this is voted without a tax increase, the government will again be building up inflationary steam.

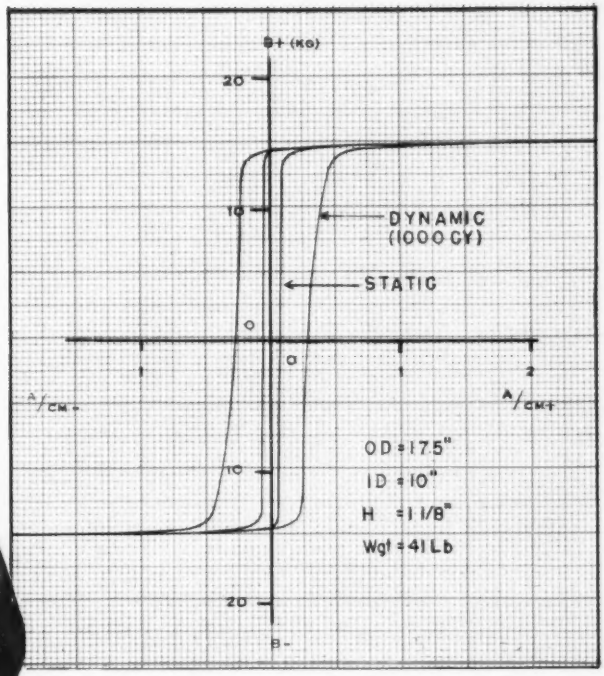
BIG POWER CUSTOMERS will be directly affected by specific measures Congress is now considering. Industrial users will either expand or cut back plans for new plants and equipment in line with the decision on taxes. With no tax increase, and with the business pick-up clearly in sight for the next few months, business plans for the rest of the year might be increased as much as 10%. But if Congress passes anything like the $4 billion tax increase urged by the President, capital expenditures may be cut back drastically.

Farmers will be more likely to invest in new power-driven machinery if they get the benefit of the new bill to support farm prices. Legislation now slated to take effect in 1950 would permit farm prices and incomes to drop considerably before government price support became effective.

This may have made some farmers hesitant to spend money on improvements. But the new bill would guarantee farm prices and incomes near the present level. That would make the farm market practically recession-proof.







Take another look at Permeron*

. . . I-T-E'S NEW MAGNETIC CORE MATERIAL

Get the full significance of the static and dynamic (1000 cycle) magnetization characteristics of this new alloy. Examine the dynamic curve particularly — as this indicates how the material acts under actual operating conditions.

Note these facts:

1. Magnetic saturation is achieved with only the slightest change in magnetizing current.
2. The extremely low magnetizing current makes it possible to build smaller magnetic amplifiers of extreme reliability.
3. The knees of the saturation curve are sharp, even at higher frequencies.
4. The most important fact: all Permeron cores have identical magnetization characteristics. The dynamic characteristic of each core is checked by a "Vectormeter," specially developed for this purpose. This consistency allows designers to predict amplifier performance accurately and positively.

Permeron Cores are available now

in widths of 20 mm. and 30 mm., in any specified inside and outside diameters. Cores are delivered heat treated and insulated. They are always furnished in housings designed to protect the magnetic material against deformation.

Take Another Look at Permeron — and continue to look to I-T-E to bring you better equipment and better designs . . . *first!*

* Formerly known as "Permanite"

For Additional Information write — I-T-E Rectifier Division or consult your local I-T-E Representative

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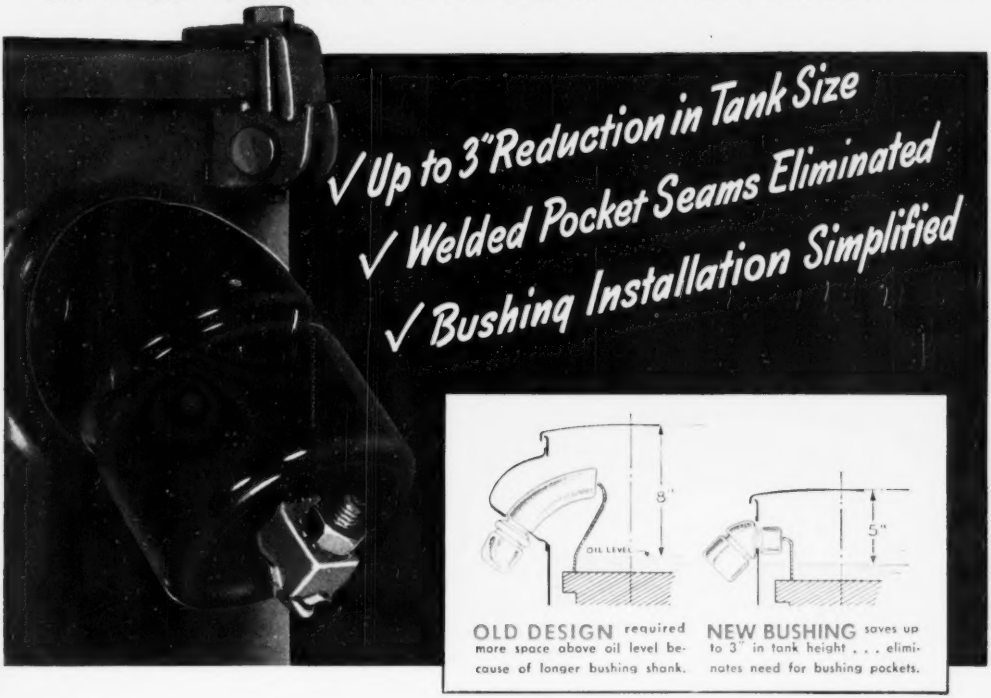
ANNOUNCE

New Bushing

on Allis-Chalmers Distribution Transformers


✓ Up to 3" Reduction in Tank Size
✓ Welded Pocket Seams Eliminated
✓ Bushing Installation Simplified
8"
OIL LEVEL
5"
OLD DESIGN required more space above oil level because of longer bushing shank.
NEW BUSHING saves up to 3" in tank height . . . eliminates need for bushing pockets.

THIS NEW TANK WALL BUSHING reduces tank height as much as 3" . . . makes A-C distribution transformers smaller and easier handling than ever before!

Size reductions result from space-saving contour of the new bushing which eliminates need for high voltage bushing pockets. These reductions are *in addition* to savings already made through use of highly oriented electrical core steel.

A one-piece retaining ring holds the bushing in place. Bushing is simply adjusted by set screws. Critical porcelain tolerances between bushing and ring are eliminated.

Any shock ordinarily transferred to the bushing by a metal-to-porcelain contact is absorbed by a locking spring behind the retaining ring. Increased wall thickness, together with straighter, shorter shank contour, further increases mechanical strength of the bushing.

The new design is supplied in transformers from 3 to 100 kva, single phase, and from 9 to 150 kva, three phase, in voltages up to 4800/8320Y.

Contact your nearby A-C sales office for further details on this new bushing, or for other facts about Allis-Chalmers quality distribution transformers. A 2703

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